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HOME FARMER.

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TO OUR READERS.

WHEN we penned our few words of greeting to readers and writers on the completion of our half-yearly volume last June, we had to deplore many and great losses to Strawberries and other crops by a memorable frost which had recently occurred; but we had also to record, as if in compensation, fields and gardens full of verdure and Roses unfolding for the shows. Generous showers had followed the frost, and the wounds it caused healed more quickly than at one time was thought possible.

We have not, at the close of another year from then, to note a case of history repeating itself. We had, it is true, a wave of cold in the early part of May; but though it did some damage, it did still more good by holding in check advancing vegetation, as well as in preventing the increase of insect enemies just emerging for their work of destruction.

Let one instance of the "value" of the keen easterly gale be recorded. The summer-like days preceding it brought out a horde of caterpillars in a plantation of Gooseberries. In forty-eight hours—estimating the amount expended in labour in combating the enemy, and the destruction it wrought—the loss incurred was computed at £100. At the critical juncture came the rushing arctic wave, and in another forty-eight hours not a caterpillar could be found. The gain to the cultivator was not less than £500, and probably very much more, for he was enabled to sell 2000 bushels of fruit that bid fair to cease swelling, and to shrivel on the branches. That was *his* compensation, afforded in a natural way by the bitter frost wind which he at first deplored as such an unfortunate visitation. This one case is large enough, and definite enough, to show that out of what may be regarded at the time as a great misfortune good may come. Let no one, then, be disheartened at the moment by a temporary check, as impediments may in reality be "blessings in disguise."

After the "rest" that vegetation received, first in February and then in May, followed by unclouded sun, the advance of the Roses was rapid—too rapid for many southern growers to exhibit the most magnificent blooms at the shows where they have been hoping to win high honours, and this year they would almost seem to stand at a disadvantage against growers in the cooler north, where fields and gardens are so full of verdure. Still, it is little short of marvellous to note how well in past years men of ability and resource have triumphed under adverse conditions; and we will hope that all who strive with a zeal that is admirable will have a full share of the honours in the campaign which has already commenced—the absorbing and delightful tournaments of the Rose.

Equally strong is our desire that success will attend the efforts of all—gardeners and amateurs—who are seeking to obtain it in other departments of gardening; and if we can be helpful by the help of others who are so able and willing to aid, we shall be thankful, for to be *useful* in the wide and important domain embodied in its title has ever been the object of the *Journal of Horticulture*.

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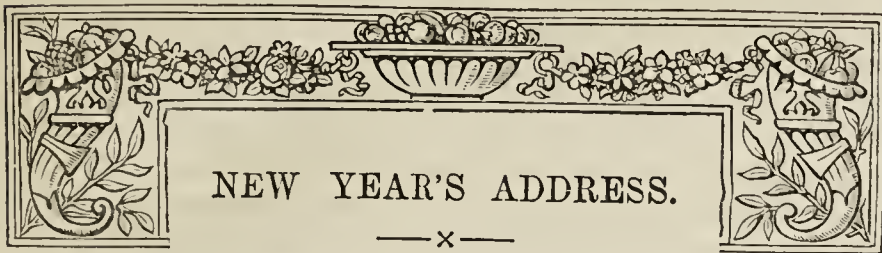
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I WAS visiting in a distant part of my parish last week when I suddenly found myself in the midst of a stag hunt; my mare, which is not venerable, but what the dealers call "aged," began to sniff, snort, and plunge, and although I believe she is guiltless of ever having been in the hunting field, seemed as if she would like to rush into the fray. She, however, very soon cooled down and went along at the steady pace befitting a country parson's horse. So when I was told the other day (notwithstanding my suggestion that they should put the matter into a younger and fresher hand) that I was wanted to write the New Year's address, I felt as if somewhat of the old fire was in me; but, alas! I come down from those heights, and if the readers find me going on in the old steady pace they must lay the blame on my imperious master, the Doctor, who says I *must* go on. It is the tendency of advanced years to take a somewhat gloomy view of events; Lord Beaconsfield used to say "old age is a regret," but I am thankful to say that I am no pessimist; I do not think the days past were better than our own, and I am sure, so far as horticulture is concerned, we have never had such wealths of beauty to cheer us as in this last decade of the nineteenth century. In every branch of gardening there is continued progress, and if in some cases from year to year it appears slight, it is because we have attained so near to perfection there is little space for improvement left. All parts of our globe are now laid under contribution, and our plant collectors will soon find themselves in the position of Alexander the Great as he stood on the Indus and sighed that he had no more worlds to conquer.

But in dealing with horticultural matters one must, of course, allude to the centre of all scientific and practical gardening in England—the Royal Horticultural Society. I need hardly say that under its present able management it has fulfilled its mission. The most regrettable point connected with it has been the long and serious illness of its able, courteous, and indefatigable Secretary—the Rev. W. Wilks. All who know how much the Society is indebted to him will feel that no greater calamity could happen to it than his enforced retirement; and I am thankful to be able to say that the prospect of his being able to continue at his post is assured to us, and we may hope that the use of that famous voice that he had may be quite restored to him.

So far as the exhibitions of the Society have been concerned, the Temple Show was remarkable in extent, variety, and beauty; a magnificent collection of plants was once more brought together; it was opened under Royal auspices, as His Royal Highness the Duke of York attended on the first day, and it was a great financial success. In another department the Society made a new departure—namely, that of holding a great autumn fruit exhibition at the Crystal Palace. It was perhaps not a favourable year for the commencement of such an enterprise, for although there was a bountiful yield of Pears, Apples were a very irregular crop; still there was a magnificent display, and much discussion was originated on the question, "Does fruit-growing pay?" No doubt an immense stimulus has been given to the cultivation of fruit in this country, and provided people do not expect too much, substantial good must result from a more intelligent and extended culture of Pears and Apples. The usual fortnightly meetings have been most interesting, and afforded the opportunity

for raisers of new varieties and introducers of new plants to bring them under the notice of the public. Alas! I fear that this last word is a misnomer, for anything more disheartening than the attendance at the Drill Hall could not possibly be conceived. Beside the Committees one sees about twenty or thirty persons in attendance; even those Fellows who live in London do not take the trouble to attend, and yet it is no exaggeration to say that there are opportunities for obtaining a sight of all the newest and best productions in horticulture which no other place can give.

There has not been much alteration in fashion with regard to those flowers most in favour. Orchids still hold the pre-eminence amongst those favoured ones who have no need to consider too closely their expenditure in these matters, while for us commoner people the Rose, Carnation, Dahlia, Chrysanthemum, and Begonias are still the most popular plants. The extent to which new flowers and plants generally are brought forward may be gathered from the fact that nearly 600 certificates were granted in 1894, and one may perhaps ask doubtingly whereunto this will grow. Who, for instance, will give a place to the eighty-one Chrysanthemums which have been certificated? or will the twenty-six Dahlias, many of which were of the Cactus section, find a permanent place in the garden? or will they be elbowed out by newer varieties in 1895? With regard to the Carnations, most of them are of the border varieties, and the liberality with which Mr. Martin R. Smith has distributed his carefully hybridised seed amongst the members of the National Carnation and Picotee Society will perhaps lead most growers of these popular flowers to wait and see what their own plants produce. Of the 120 seeds kindly sent to me by Mr. Smith not one has failed, and having now that number of "stocky" plants I may cheerfully await their blooming, and not encumber myself with others which may not be anything better. It may surprise many to find that twenty-six Begonias obtained certificates, since so many persons are contented with plants raised from seed after the manner of Cinerarias and Calceolarias. The new section of Chrysanthemums of which Mrs. Alpheus Hardy was the forerunner has had the addition of new flowers, such as Hairy Wonder and Mrs. W. J. Godfrey, and just as the Chinaman has been bowled over by the Japs in the far East, so for some years have the Chinese incurved varieties given way to the Japanese; but during the past year several promising sorts have been added to the former section. It is noteworthy, also, that English raisers, such as Mr. Shea and Mr. Owen, have been very successful in hybridising and raising new varieties; in fact, here, as in many other plants, the difficulty will be, what shall we select for our own growth?

Recurring again to Orchids, the three groups which seem to be most favoured are Cattleyas, Odontoglossums, and Cypripediums, and to these three groups ninety-nine certificates were granted, being about one-sixth of all the certificates which have been given during the year. As far as this is evidenced there is no diminution in the rage for Orchids and the desire for novelties. There are two plants which, though not certificated this year, were much better shown than before, and are likely to be very extensively grown; these are *Lilium Henryi*, the beautiful yellow speciosum from North China, and *Richardia Pentlandi*, the beautiful yellow Arum from South Africa; the former robust and perfectly hardy, the latter requiring some care to grow it successfully in a greenhouse.

With regard to the general progress of horticulture and the Societies by which its interests are promoted, there can be no doubt that the past season has been a most trying one in many cases. The depression which has now spread, as most people foresaw it would, from the agricultural to other branches of industry in our country, has been one cause, while the wet and ungenial summer (if summer it may be called) has upset the calculations and reversed the balance-sheet of many a Society.

Those special Societies which are connected with the metropolis and are not entirely dependent upon their own resources have fared fairly well. The Chrysanthemum, Rose, Carnation, and Dahlia Societies came out of the ordeal unharmed; but throughout the country many are in an enfeebled state, and of these not a few will probably succumb. The general taste for and love of plants have, however, in no way diminished, and the enormous supply of cut flowers to Covent Garden Market, which was so well shown in the able paper read by Mr. Assbee before the Horticultural Club, evidences an ever-increasing demand and a consequently ever-increasing supply; and this, not as some people imagine, from abroad, but from our own islands. And though it is to be hoped that we shall never equal the extravagance of the old Romans in these matters, and although perhaps in the case of flowers for funerals the practice has run rather wild, we may all hail with satisfaction the continuance of the custom so beautiful and tasteful as that of the use of cut flowers.

A season in greater contrast to that of 1893 it was impossible to conceive. It disappointed the hopes both of the agriculturist and the horticulturist. The hopes of the former were frustrated by the heavy rains of July, August, and September, and of the latter by the sharp frosts of May. The rosarians had to tell their sad tale of loss and disappointment, and the continued wet following the drought of 1893 revealed to us many a gap in our gardens. Alpines and many herbaceous plants suffered extensively; many plants were out of character and flowered at the wrong time, and I think we may safely say that any which withstood these two consecutive seasons may be fairly considered as hardy, especially if by hardiness we understand not merely the power of resisting frost, but those many atmospheric changes to which our variable climate treats us. We have learned some of our best lessons in combating these difficulties, for in horticulture, as in other things, "sweet are the uses of adversity," and yet there are some contingencies which we find it almost impossible to provide against. Suppose, for instance, that we had known that frost of the 20th of May was sure to come, what could the Rose grower have done to save his plants from its destructive power? and perhaps it as well that we should also learn that lesson of our impotence.

Horticultural literature still maintains its high position, and I think the venerable chief of the *Journal of Horticulture* may be congratulated on the continuance of its position, not only as a gardener's friend, but especially as the organ of the amateur. There has been no addition to the number of horticultural journals; indeed, there are now more than the most greedy reader can possibly get through week by week; but, then, as their contents are so varied each lover of his garden will be sure to find something suited to his wants. It may possibly be said that the "Index Kewensis" can hardly be regarded as pertaining to horticulture; but I think this is a mistake, for Kew has been the means of introducing amongst us many beautiful products from various quarters of the earth, and we do like to know from whence they came and when first brought under notice. The third volume has been published during the past year, and is a monument of painstaking industry of which the Editor and the Royal Gardens may both alike be proud. "The Book of the Rose," which has recently been given to the world by the Rev. A. Foster-Melliar, is a most valuable monograph which will be widely read and much appreciated, and may justly claim the title which it proudly assumes of being "The" book of the Rose. Nor can I omit noticing a charming little volume issued during the past year by my neighbour Mr. Alfred Austin, entitled, "The Garden Which I Love." Its delightful style and poetic fancy are calculated to entice many a person who has a garden to take example from the author in his love for and cultivation of hardy herbaceous plants. There is nothing in the position and surroundings of the garden of the old Manor House of Swinford which may not be found in many a country house, and which only requires the love and tender care

which have been bestowed upon this garden to make them a source of pleasure and happiness to their possessors.

To all who are interested in the welfare of the gardener, it is satisfactory to look back on the success of the two institutions which have been established for his benefit. The old and favourite institution of the Gardeners' Benevolent and its younger sister the Gardeners' Orphan Fund have both had a satisfactory year, and this is the more so because all our benevolent and philanthropic institutions are deploring the falling off of their funds. The only regrettable point in connection with these gardeners' societies is that a larger number of gardeners do not belong to them. If more of them joined they would help the societies, and the sympathy of others would be more called out.

And now one comes to the most melancholy part of the review of the past year, and calling over the death roll. Early in the year horticulturists were startled by the announcement of the deaths of two men very different in their age and position, but both keen horticulturists and both valued for their social qualities. William Ingram of Belvoir, and Walter Williams of Salisbury, the former the accomplished head gardener of Belvoir Castle, whose gardens he made famous by his keen sense of artistic beauty, and more especially by what he called his spring bedding, for which he became famous everywhere. He had spent a long life in the intelligent pursuit of his calling which he so much loved. Many had seen Mr. Williams only a few days before his death, full of the energy and hopefulness which characterised him, and could hardly believe the sad news that this vigorous young life was extinguished. During the year the deaths among prominent horticulturists have not been many, but some well known names are amongst them, such as Joseph Rust the sturdy old gardener of Lord Abergavenny, Mr. Sibray of the firm of Fisher, Holmes & Co., Sheffield, and Mr. W. H. Gower whom all Orchid and Fern lovers will mourn for, for he was continually giving the results of his experience in the gardening papers. Then followed Mr. Wither-spoon, a successful self-taught gardener in Durham; and last on the roll with startling suddenness, the gentle spirit of Mr. Charles Collins of the *Journal of Horticulture* passed away.

And thus, in looking over the past, the year closes around us with its chequered stories of joy and grief, gladness and disappointment, and we have now to look forward for another year, happily not knowing what may befall us in it. But I think this I may say, that as amongst those things that have combined to lighten the burden we are all called upon to bear, gardening is with all its pleasures, has been amongst the most potent elements; I may, from my own experience, encourage all who love the same pursuits to go on in any branch of it in which their fancy may lead them. To the younger members of our craft I would especially say a word of encouragement. It is well I believe for all men, and especially young men, to have a hobby, and what hobby is more delightful or more elevating than the garden? There are so many fields in which you can bring your energies to bear, and whether it be fruits or flowers there is scope for originality and new successes. But let all be done in a reverent spirit. Do not, as the heathens did, deify Nature, and make gods and goddesses of tree and flower, but let all lead you up through Nature to Nature's God, and many of you will find when worried with the affairs of life your flowers have a lesson to teach you, and so using the words of one of the contributors of the *Journal* in a pleasant little volume which he (the Rev. D. R. Williamson) has lately published.

"Oh, Thou, that with the joyful doct rejoice,
And sorrowest with the sorrowing—not in vain,
Be Thou my consolation, till God's voice
Shall call my spirit to its home again."

And so now the old fogey bids you all farewell, it is not unlikely that this is the last time he may be able to address you, and so he wishes you all to carry away with you the expression of his sincere good will. He has many friends amongst you and many corre-

spondents whom he has never seen, but to whom our common love has been a bond of sympathy; and so, being a parson, he may close with the expression of hope that you may be led through all the scenes of earthly life to look forward to that home where "The tree of life is for the healing of the nations," and so to our venerated chief and his able coadjutors and the contributors who have so much tended to keep up the character of the Journal, and to its readers, young and old, I wish a very Happy New Year.—D., *Deal*.

THE STATUS OF THE TOMATO.

ONLY general acceptance can enable the Tomato to be admitted to the select circle of fruits. If in relation to its consumption we had began with it in the same way that public taste seems tending, we should have placed it in the category of dessert fruits at the first. Unfortunately, we began by using it as a cooked vegetable, and from that low status it seems very difficult to lift it, in spite of the fact that its improvement has been so remarkable. It seems very probable that in a few years, whatsoever experts or authorities may determine, that public opinion and taste would settle the matter by including Tomatoes amongst dessert fruits, and as such admitting them to our tables. Once so full a recognition of the proper status of a Tomato be made then its exhibition status must follow suit.

The Tomato occupies an unique position amongst garden products because of its various uses. It is consumed very largely in its ripe uncooked condition as is any other fruit. It is also eaten, and largely too, as a salad, and not least it is consumed as a cooked vegetable. No wonder then if its status presents elements of uncertainty that it can never be dissociated from vegetables seems certain. Its position in that respect is too far assured, and its uses as a salad and as a cooked vegetable compel that position. But on the other hand it is in every sense as much a fruit botanically as is anything eaten, and if partaken of in a raw ripe state as are Apples and Pears, then does it seem to be just as much a fruit as are either of those, for they too are largely partaken of in a cooked form, as sauce or stewed, without in any way losing status. The question raised by Mr. Wilks is getting an old one, as it is constantly being asked, but the oftener it is asked the greater does it seem to be insured of settlement.

After all, the solution seems chiefly to lie with framers of schedules, because the matter seems to have interest only in connection with exhibition competitions. In all other respects I know of nothing to prevent persons showing or calling Tomatoes under the heading of fruit, or whatever they like. Then the framers of schedules may ignore the claims of Tomatoes to be classed as fruits altogether, and admit them and classes for them only under the head of vegetables; or they may place them under the heading of fruits, making them admissible in fruit classes only; or they may do the more reasonable thing—not only leave it quite optional with exhibitors of collections of fruits to include Tomatoes, but include one or more classes under the fruit section for the smaller fruited forms that are so handsome on the dessert table.

The setting up of a rigid *non possumus* seems to be both arbitrary and undesirable. It looks as if there were efforts made to check the use of the Tomato as an ordinary ripe raw fruit, than which nothing could be more ungenerous or ridiculous. One very special need in relation to Tomatoes now is not in the direction of prolificacy or beauty. It seems impossible to advance in either direction, although we yet may. It is in the production of higher flavour that we want to see an advance, although most good Tomatoes have in their season very agreeable flavour now. But our palates are hardly content with ordinary flavours. We are always craving for something high or piquant. Our palates have been demoralised by rich fruits, Pine Apples, Muscat Grapes, rich Pears or Apples, strongly flavoured Nectarines and Plums; also by constant use of meats and condiments and liquors. With such competition the Tomato seems almost tame and insipid, yet to a purely natural palate its soft flesh and juicy nature are delicious. It does not tempt to a feast, much less to a gorge; but it is delightfully refreshing and satisfying.

The more we bring up our children to natural tastes and habits the better they will in later life learn to appreciate the mild unstimulating flavour of Tomatoes, but if they are to be almost fed on sweets and cakes, then only will they be content in later life with fruits that have the strongest of flavours. As it is, bad are the Tomatoes that are not more pleasant eating than are myriads of Melons, yet the Melon holds a strong position in fruit classes, and is constantly found in collections. I hesitate not to say, with all respect to others' opinions, knowing from long experience how

deceptive the most beautiful looking Melons may be when cut and tasted, and how few out of the whole have real edible merit, that I should regard a pretty, well ripened dish of rather small Tomatoes at any time as preferable to a Melon that may be absolutely worthless.

I hope that the suggestion that the Tomato may be freely admitted into both sections, fruit and vegetables, at shows will soon be universally adopted.—A. D.

GENTIANA KURROO v. BREVIDENS.

THIS plant is but of recent introduction into England, having reached us as late as the year 1892 from St. Petersburg. The specific type, *G. Kurroo*, *Pneumonanthe Kurroo* of D.n, was imported only a



FIG. 1.—GENTIANA KURROO VAR. BREVIDENS.

few years earlier in 1879 by Mr. Bull. Sir Joseph D. Hooker locates the plant in the Western Himalayas, between Garwhal westward to Kashmir, where it is described as one of the most ornamental of the local herbaceous perennials. It flourishes between the elevations of 5000 to 8000 feet, the brilliancy of the foliage, the delicate azure blue of the limbs of the corolla sprinkled in the throat of the tube with pearly white, making it a noticeable feature.

The specific name is distinctly happy, being euphonious, and perpetuating the name given it by the natives of Garwhal, to whom the plant is well known, and of medicinal use. This is due to the bitter principle present in the roots, in common with other species of the genus, though it is to be hoped with less fatal results to its existence on the Himalayan slopes than to its congeners on the European Alps, whence the species alluded are rapidly being removed by the collectors of Gentian roots for herbalists.

It is distinctly, from its dwarf spreading habit, and the brilliancy of its colouration, and the lightness and brightness of its tufted leaves, a considerable acquisition for the rockery. The flower stems lie prostrate on the ground for about half their length, varying from 4 to 8 inches, the coriaceous leaves growing from 3 to 5 inches long. Their shapes may be seen in our engraving (fig. 1) made from a plant which

flowered in the Royal Gardens, Kew, in the beginning of July. As Mr. Nicholson gives October as the month of flowering, this period probably covers a considerable part of the later half of the year.

WHAT TO FORCE.

IN many gardens, where a continual supply of flowers has to be kept up through the winter months, the above question is one of daily growing interest. Chrysanthemums with all their beauty and increasing popularity will soon become things of the past, and attention must necessarily turn to other floral species to take their place, in order that the demand for flowers may be met. In most cases the supply of forcing bulbs, such as Hyacinths, Tulips, Lily of the Valley, and Freesias, are quite inadequate in themselves, so that flowering shrubs that will stand the strain of forcing have to be cultivated for this express purpose, and if care and economy be studied a varied and ample supply may easily be maintained.

Deutzia gracilis has long been a great favourite, and still claims first honours on the list of flowering plants. It can be readily forced, and blooms with the utmost freedom, its long sprays profusely covered with pure white flowers always attracting admiration. Where a large number of plants is available it is best to force them in small batches, in order that a constant supply may be insured during the winter. Many a failure in *Deutzia* cultivation is owing to the fact that the plants do not receive the care and attention due to them after the flowering period is over, a time when most forced plants have rather a hard lot.

If the *Deutzia* requires potting it should be done immediately after the flowers fade; this will encourage fresh growth. The major part of the next season's bloom depends on inducing the plants to throw up long shoots from the base; but in addition to this, all breaks from the main stems become thickly covered with bloom. The plants should, if possible, be kept in a warm house until growth is completed, and when weather permits be placed out of doors in the full glare of the sun in order that the wood may get thoroughly ripened, without which the next season's flowering will prove a failure.

Spiræa japonica is another useful old favourite, closely competing with the *Deutzia* in popularity. It is easily forced and grown for cut flowers or as a decorative plant, for which purpose it has few equals, the bright green foliage adding so much to its decorative qualities. The plants should be placed in a cold frame after forcing and protected from frost, and if the stock is limited and required to be increased the clump should be cut in two, and planted about a foot apart in a piece of spare ground and left for at least one winter, when they may again be taken up for forcing.

Staphylea colchica is one of the later additions to the forcing stock, but is so well known that comments are almost needless. The peculiar fragrance of its creamy white flowers is in itself sufficient to place it in the front rank of forcing plants. Its treatment after flowering should be similar to that of the *Deutzia*, though some gardeners advocate planting it out during the summer months. It throws up long sprays of growth after flowering, which should be slightly shortened back in order that the limited number of buds will develop better, and so throw out more substantial trusses of flower the following season.

Azalea mollis in a forced state throws up a profusion of bloom that is doubtless very useful, but the extreme delicacy of the flowers in a cut state and their short-lived beauty are great drawbacks to its cultivation, and where the plants are available the bright yellow *Azalea pontica* is much more useful. This forces freely, though not so rapidly as *A. mollis*, and is the sweetest of all *Azaleas*. As a cut flower it is a great favourite, for in addition to its fragrance it is very substantial and stands well in water. Careful attention should be given after flowering to encourage the young growths, and when weather permits the plants being placed out of doors they should be planted in a nursery bed consisting of peat, leaf mould, and sand, where, if judiciously managed, a supply for forcing may be continually maintained.

Rhododendrons form a very useful addition, especially where large supplies of cut flowers are necessary. The best variety for early forcing is *R. caucasicum roseum*, a bright rose colour, and for a later succession are *caucasicum pictum*, with fine trusses of rosy pink flowers; and Cunningham's White, a free flowering variety with pure white blooms. If the plants are protected until frosts are over, they may again be planted, and will suffer little or nothing from being forced.

There are many other plants in addition to those mentioned all suitable and useful for forcing, but space will not permit further reference of them at present. The keynote of success in forcing plants is careful and judicious treatment during the period immediately following their flowering.—GEO. HOLLINGWORTH, *Alton Towers*.

HARDY FLOWER NOTES.

As we wander into the garden in these short days we are greeted with no blaze of colour. In this respect the greenhouse has certainly the advantage, as under its shelter and with its genial warmth many plants may be in flower. But although tempted for a time to admire the brightness of the denizens of the greenhouse, the heart of the one who is wedded to hardy flowers cannot stray long from the plants he cherishes, and to them he gladly turns again as they grow with the free air of heaven above and around. It is true that this air is too often chill, and that ere we may venture to leave our firesides to sally into the garden we must assume additional garments. But though the air may be unkindly, and give us only a chilly greeting, these pets of ours in the borders, and more especially on the rockeries, seem to give us a warm welcome. Mayhap it is that we know them so well that each change in their appearance is noted; that here one seems swelling into bud, and that there another is showing a faint colour through the chink which shows that the calyx begins to open. These things we love to see and to study, thinking all the while that it may be that these flowers, which, as the poet says, "enjoy the air they breathe," feel pleasure in knowing that their modest charms are recognised and minister to our enjoyment of life. Well, it may be so, for are there not "more things in heaven and earth than are dreamt of in our philosophy?" Enough, however, of these thoughts, and let us see what have called them forth and compelled their utterance. Few are the blossoms which this season yields, and of the few a large proportion have either lingered too long, or have unsuspectingly essayed to bloom before their due season. The former look unhappy, as if they missed the longer days with which they are accustomed, while the latter we view with admiration, tempered by the fear that their reign of beauty shall be but short.

Of the flowers which dally upon the stage one may mention briefly a few. Flowering through some perpendicular rockwork behind a small sunken nook devoted to *Trilliums* and a few other moisture lovers is a plant of one of the varieties of *Campanula muralis*, whose neat leaves and pretty blue flowers give us a sense of pleasure as we pass them by or stop to look at their beauty. This is a good wall plant, and useful in many positions. On the upper terrace of a rockery is a plant of *Achillea argentea*, which has a few heads of its white flowers still expanded, although not so fine as in brighter weather. Very neat is its silvery foliage also. On another rockery a number of the pretty white flowers of *Potentilla alchemilloides* are very pretty, although the leaves are getting past their best. On a level border a few seedlings of *Crocus speciosus* are in flower, their more mature companions being no longer in bloom.

In another place one or two blooms of the neat little *Colchicum umbrosum* still linger, their light purple flowers being welcome as ever. A few plants of *Godetia* still show flowers and look wonderfully well, and near them and on another border the perennial *Anthemis tinctoria* and *A. tinctoria pallida* produce their yellow Marguerite-like blooms. Here and there, too, a few other annuals, such as Cornflowers, Marigolds, and Chrysanthemums emulate the *Godetias*, while perennial Chrysanthemums remain in flower. Other stray loiterers there are, which seem unwilling to depart and give a few spikes or single blossoms. Among these may be mentioned *Veronica Lyalli*, *Lychnis diurna* fl.-pl., and a little *Veronica* which goes under the name of *corymbiflora*, but its true specific name I have not yet ascertained, the name generally applied being only a garden one. A late-produced spike of *Oenothera Lamarckiana* has been in bud for a time, and makes one wonder if a short period of brighter weather might not induce it to expand its yellow flowers. The probabilities are not in favour of this, for a period of severe weather may arrive at any time, and this would soon shatter our visionary hopes. Like the flowers themselves we are apt to delay as we think about them, and a short notice of some which have come before their due time is perhaps more worthily due than is any praise to the laggards.

There is a pathos in the look of these precocious flowers which we cannot but feel, a wistful look which seems to express silently, yet impressively, the thought that they have come to cheer us in dark days, knowing all the time that some biting frost will bring them to premature decay. These flowers are mostly of the Primrose family, and very beautiful are they, whether *Polyanthuses*, *Cowslips*, *Oxlips*, or true *Primroses*. There are yellows of two or three shades; whites, some almost pure, and others of a creamy tint. Some, too, there are which are almost crimson in their brightness, and Lilacs and Pinks are not absent, their colours being much enhanced by the yellow centres. One which at a distance looks as if coloured to imitate a velvet of deep brown is pleasing on a rockery, and two or three *Jacks-in-the-Green* with their green ruffs remind one hopefully of the

coming of the Winter Aconite with its cheery little flowers. It seems, however, to wish to remain "dead to the world" for a little longer. Among the precocious Primulas is a plant of Siebold's Primrose, which from the middle of November has displayed a truss of flowers, that have withstood weather of a kind which would have destroyed them had it come in their due flowering season.

Crocuses, of which there are a few in flower, and which, with a little shelter and when crowded together in a clump, stand the weather better than would be believed. To some the Crocus is only beautiful when expanded, and it is only on a few days at this season that their tastes can be gratified. The writer, by close companionship with this flower, has learned that even at other times a clump of their coloured cones is full of attraction. At the time of writing this two clumps of *C. longiflorus* are nearly all that are in flower, but the lilac and yellow displayed on the outer segments of the closed flowers give a bit of welcome colour; while when open the bright lilac flowers are very beautiful, and are rendered more attractive by the scarlet anthers and yellow filament.

One can hardly understand why it is the case, but if good authorities are to be believed, the Snowdrops of November and December bloom with us earlier than in their native lands, although these are much further south. I know there are some, as true lovers of flowers as myself, who look askance on these unseasonable flowers, as they call them. I think, however, if they could only see a few in their gardens in the last months of the year, their beauty would so appeal to them that these Greek Snowdrops would no longer be looked on as aliens, but become welcome friends. Very chaste and beautiful are those now in flower in my garden—harmonies of white and green we love to see as we stroll along the garden walks.

With the passing remark that *Helleborus niger*, the Christmas Rose, and *Erica carnea* flowered before the end of December, it is needful to pen a few lines upon other features of interest, which depend not on beauty of flower, but of leaf, and are more in evidence in the rock garden than in the borders. The old wall behind one of the rockeries and the rockwork itself are marked with lichens and patches of mosses. The former are black and brown, grey of varying depth, and green of different tints, some almost orange in hue. The latter, too, are of different shades, and very beautiful with their velvet-like appearance. The hand of Nature has given us these things of beauty masked, and we have sought to rival or enhance them by our choice of these plants of larger growth with which the rock garden is furnished. Among these there are silver-greys, velvety-greys, and greys of duller tints. There are some well-nigh black and greens of all kinds, some so approaching blue or bronze that we are almost afraid to class them with the greens. Then we have variegated plants, and those which have the green of their leaves marked or zoned in different shades. Of some of these things I had intended to speak when I took up my pen, but other thoughts in connection with my theme have sprung into being, and taken too much space. There are, however, mounds of Mossy Saxifrages, as soft and velvety as the mosses themselves, and as bright in colour. There are blue-green *Acænas*, silvery encrusted Saxifrages, glaucous Sedums, grey Alyssums, and glaucous tufts of spiny Pinks. Endless, indeed, are the tints which may be seen in fresh or in withered leaf. Equally unlimited are the forms of these leaves, which are of all manner of shapes, sizes, and variety of texture. Some are round, some pointed, some ovate, some are smooth, others rough, and others again wrinkled. To tell of all these things as we see them is, indeed, an impossible task, and would weary the reader. Say not, however, that hardy flowers have no interest in winter! Skies may lower, winds be keen, and the sunlight be hidden from view, but among the plants, and only seen by those who love them, there is much to encourage. A calm delight they may give, but it is no fleeting one, and remains with us till the gloom of winter is past, and these plants now at rest have clothed themselves with blossoms of exquisite beauty.—S. ARNOTT.

DEATH OF MR. CHARLES COLLINS.

It is with extreme regret that we have to record in our first issue of the year the sudden death of an able, trusted, and respected member of our staff, Mr. Charles Collins. He was engaged in the preparation of the last issue of the *Journal of Horticulture* on Monday, December 24th, the pages of which were completed for press on that day, the articles having been placed in type on Saturday, in view of the Christmas holidays. Mr. Collins was in his usual health, happy and cheerful, looking forward to spending a pleasant Christmas-tide with his family. No doubt his hopes were realised on Christmas Day, the last day but one that he spent in life on earth. On the succeeding day, Wednesday, he with his wife's parents, also two young children, went

from Hornsey to Forest Gate to spend the day with a relative. On returning to the station at night he carried a child, and died as he was entering the train. He may have hastened somewhat, though he would not be likely to "rush" for the train, because he had been warned by a medical man not to do so, his (Mr. Collins') father having died from heart disease; but whether he hurried or not the exertion was too great for him, and hence this most grievous fatality. A gardener who knew our deceased coadjutor long and intimately has written to us as follows:—

"Charles Collins was a native of Hampshire (Otterbourne), and commenced his gardening career under Mr. Summers at Sandbeck Park, in the year 1880. After a stay of about three years he went to Wortley Hall, Sheffield, under Mr. Simpson; from there he went to Howick Castle, Northumberland, under Mr. Inglis. As a youth he was most energetic and painstaking, and a keen observer of everything connected with horticulture, always willing and anxious to assist in whatever was required of him. His motto was, 'Whatever thine hand findeth to do, do it with all thy might.' This he acted up to through life, and what a lesson may be learned from his life!

"He was left fatherless at an early age, and had to turn out in the world to earn his living, while having an impediment in his speech (resulting from an attack of scarlet fever) he was placed at a disadvantage when compared with many other youths. He, however, made up his mind to overcome all difficulties. During the long winter evenings he devoted many hours to study—reading, writing, drawing, and arithmetic. This was in the early days of his bothy life. During the summer evenings he might be seen making notes in the kitchen garden of the cropping, and of whatever might possibly be useful. After a few years' experience he was ambitious to be a journalist, and occasionally wrote for the gardening press. He learnt shorthand, and was a good verbatim reporter. He also studied French and German, so that he could decipher what was written horticulturally in either of those languages. He was ever mindful of others. The ink is scarcely dry on the letter received from him only a day or two since asking assistance with reference to a brother in the craft, and now the post brings word that the hand which wrote that letter is laid cold in death. Cut off in the prime of life, the memory of Charles Collins will be cherished by all who knew him."

We may add that Mr. J. Simpson, observing the young man's aptitude with his pen, and recognising that the defect in speech must naturally prejudice him as a gardener, advised his assistant to make himself proficient as a writer for the press. The advice was good, and followed assiduously. He eventually obtained employment under Mr. T. W. Sanders on "Amateur Gardening," acquitting himself well. Mr. Collins then passed to a position on the "Gardeners' Chronicle," by the kind and distinguished Editor of which paper he was recommended to fill a vacancy which occurred on the staff of the "Journal of Horticulture." Here, for nearly three years, he gave complete satisfaction as a reporter, paragraphist, reviser of MSS., and proof reader, while now and then, as time permitted, he would write an admirable article on a seasonable subject worthy of a prominent position over his initial of "C." He was, in a word, a true horticultural journalist. He had acquired the invaluable habit of taking pains and making his literary work as faultless as possible.

After thoughtful and persevering practice in the choice of appropriate words for the construction of sentences he developed a style of writing at once accurate and "readable"—prime essentials in press work, for no matter how valuable may be the information contained in an article it is useless for publication if not conveyed in acceptable literary guise. It is most creditable to the intelligence and care of gardeners that so many of them approach the desideratum so nearly that it is a pleasure for editors to supply the finishing touches; and we have never known a gardener who has mastered the art of imparting sound information in the most correct and agreeable way who has not benefited by the acquisition. Tedious the process may be at first to many, but every step in advance makes the next step easier, and eventually the position is won by those who persevere the same as Mr. Collins did. He habitually wrote his reports of shows quickly, fully, and accurately as he walked along by the side of the exhibits, and had only to tear the leaves out of his book, and send them to the printers, seldom any corrections being needed when in type. This is a habit that has to be acquired by all the staff reporters of the *Journal of Horticulture*, as the quickest method for getting the work out of hand and the easiest to the narrator.

Thus, as the friend of Mr. Collins suggests, "lessons may be learned from his life"—lessons in devotion to the attainment of an ideal, of diligence in duty, excellence in work, as the result of persevering endeavour, and in the end success. His work was his delight, and no man was happier in the discharge of his duties than he; and now that his promising life is ended, at the turn of thirty years, it is pleasant for all his associates in it to feel that not one unpleasant word has passed between them and he who was called so suddenly away. Mr. Collins had a charming disposition. He thought no evil, and we venture to say that no one ever heard him utter a disrespectful word towards any person. One who constantly met him at the London shows and meetings undoubtedly expresses the sentiments of many in these words in a letter to hand:—"Mr. Collins was one of the most gentle and kindly fellows I ever met, and everyone who knew him will mourn his loss most deeply." Another justly describes him as "a man of extreme kindheartedness, and though his life has been beset with illness at home he never complained."

The illness referred to in his family has been of the most serious

nature, prolonged for years, and to him most costly; and though his salary exceeded that of the great majority of head gardeners, it has only been by the exercise of extreme prudence that all domestic wants could be met. Yet he did his best to provide for the future by joining benefit societies, such as the admirable Gardeners' United Provident Society, and now his payments will be returned to his widow less the moiety due to the general sick fund; but he had not long been a member. A particular misfortune is that he was too late by a fortnight in effecting a Government (Post Office) life insurance, and only his payments can consequently be refunded. Still, he did what he could, and a few pounds are due from two or three societies. In the meantime immediate wants have been met, one warm-hearted reader of and writer in the *Journal* having sent a cheque for £10 "in case it might be useful." It is gratefully accepted by the afflicted widow, Mrs. Collins, as are a few small sums from other friends.

If there was one kind of duty more agreeable to her husband than another, it was in attending the general meetings of our charitable institutions for the purpose of reporting them and making their benefits known to the world. All the reports of the Gardeners' Royal Benevolent Institution, the Royal Gardeners' Orphan Fund, and the United Horticultural Benefit and Provident Society during recent years were from his pen.

We have said Mr. Collins was a diligent man. He had no waste moments. He was in the habit when he had five minutes to spare of taking up a number of the *Journal* as if in search of an idea and jotting down his thoughts on slips of paper—another lesson. Some he left on his table, as he evidently found no opening for them during the pressure of Chrysanthemum time. We give a few as samples—lessons from the life of one, which, so far as we know, and we speak after much reflection, was as near as can be expected in the frailties of human nature, blameless.

It appears that Mr. Collins had often when in health expressed a strong wish to rest near the parental home of his much-loved wife, and his remains were therefore interred in Manthorpe Churchyard, Grantham, on Tuesday the 1st inst., the *Journal of Horticulture* being represented by his close friend and fellow worker Mr. Horace J. Wright.

POSTHUMOUS NOTES.

LOOKING BACK.

I OBSERVE "J. B. R." some time ago bemoaned the fact that early flowering Chrysanthemums were not represented as they should have been at the Aquarium Show in September. That is so, and like your correspondent, I was disappointed with the exhibition as a whole. There were unquestionably plenty of Dahlias, rich and glowing in all their brilliancy, but of Chrysanthemums—well, the least said the better. Whilst gazing at a stand of dozen blooms, for which a first prize had been awarded, a bystander remarked, "Well, if I had been Mr. —, I should have left those flowers at home." The blooms were certainly only third-rate in quality, but had everyone "left their flowers at home" there would have been no Chrysanthemums. This would have made matters worse than they were. But considering the hundreds of varieties of early Chrysanthemums now in cultivation, and the splendid season they have had, it is curious that they were not shown in better condition. September exhibitions are not, I fear, going to be a source of strength to the N.C.S.

LONDON SPARROWS.

The sparrow question appears to be like Tennyson's brook—going on for ever. "An Afflicted Suburban Amateur" is not alone in his troubles. Another suburban amateur whom I know can sympathise with your correspondent. His sparrows are as cheeky and as misbehaved as they possibly can be, so much so as to become pests. Last spring this enthusiastic amateur decided to lay his little back garden down with turf, as the sparrows will not agree with his ideas of gardening. Steps were therefore taken to sow grass seed, this being done about the end of March. But alas! the sparrows watched the operation, and immediately pounced down upon the seeds. Being determined to thwart their designs the amateur purchased fish-netting and covered the ground, but it was no use. As the seeds were germinating the sparrows swarmed on the ground, and made their way through the netting. The result was a very poor crop of grass, bare patches being more prevalent than green verdure. In May more seeds were purchased and sown, but it was only by close watching to drive away the birds that a respectable sward could be obtained. The same with my Crocus blooms, and I have even seen sparrows peck Carnation foliage all to pieces. Many times have I wished that the London sparrows were as good as Mr. Witherspoon's, but they are not, and—well, they are a nuisance.

APPLES—PROFIT AND LOSS.

There have been enormous crops of Apples and Pears in various parts of the country, and, strange as it may appear, some growers wished they were not so plentiful. One can hardly be surprised, however, at this when it is taken into consideration the extremely low price realised for the fruit. I saw Apples sold for 2d. and 3d. per stone of 14 lbs. in the market of a medium-sized town in Lincolnshire. One poor man informed me that he had brought about 8 stone of Apples from a distance of nine miles, and the cost of conveying himself and the fruit was 1s. Under these circumstances it will be seen that the vendor had a shilling for his trouble and day's labour. The Apples were fairly good examples of Keswick Codlins, and tons of other early

varieties were being sold in the same market. This is an instance in which it may be said that fruit-growing is not profitable, but there is another side to the picture. At Christmas last year I saw fine specimens of Bramley's Seedling sold in the same market for 3s. per stone, which appeared to please the seller greatly. The moral of this is that it is useless sending fruit to the markets when there is glut, and moreover, by growing varieties that will keep, fruit culture is a profitable investment. The experience of others on this point would be interesting.

HEAVY APPLES.

What is the weight of the heaviest Apple on record? The "big Gooseberry" is practically played out, but paragraphs have been going the round of the daily Press that certain growers have produced Apples of enormous size and weight this year. As announced in some previous comments of mine, Mr. Woodward of Barham Court Gardens exhibited a Peasgood's Nonesuch Apple which weighed 22 ozs. at the Agricultural Hall. Then came the announcement that Mr. Payne, gardener at Wells Palace, Somersetshire, exhibited twelve fruits of the same variety at Bath, these weighing in the aggregate 15 lbs. The largest Apple was 16 inches in circumference, and weighed 22 ozs. These were shown at the Royal Aquarium, and a silver medal was awarded for them. They were unquestionably fine Apples, being so richly coloured, and a few remarks from Mr. Payne concerning the treatment he has given his trees would doubtless be appreciated by many readers of the *Journal*. It is not everyone who can grow a dozen Apples that win two silver medals besides first prizes. But verily there is "nothing new under the sun." In the *Journal* of December 15th, 1892, page 523, it was recorded that Mr. W. Salcombe, Ticehurst, had grown in the open air a Peasgood's Nonesuch Apple which measured 16½ inches in circumference and weighed 26 ozs. The heaviest on record that I know of was shown by the late Mr. Samuel Barlow at the Guildhall show in 1890; but this fruit, which was stated to weigh 30 ozs., had been grown under glass.

LOOKING FORWARD.

The season has not been on the whole a salubrious one, yet many a man who has now a little time for reflection can take a retrospective view of his work with pride. The earnest worker has this year succeeded in producing a brilliant display in the flower garden, as well as excellent crops of fruit and vegetables. I do not mean to infer that there are indolent gardeners, because men who are indolent are not worthy of the name of "gardener," but rather to give a hint to young and old to be on the alert for another season. A little forethought often prevents much trouble and annoyance, and the past summer has taught lessons which every gardener who is a keen observer may turn to good account in the future. Men who win success are those who look ahead, form high ideals, and persevere.—C.

CLEANING VINES.

My article on the above subject (page 535 of the 13th ult.) seems to have upset "Erica's" peace of mind. I am sorry for that, as my notes were written to assist anyone in need, and not to provoke the opposition of persons following different methods. Years of observation have convinced me that the work is often carried out thoughtlessly, and that denuding Vines of bark is detrimental to their well-being, as is proved by the greater increase in the size of stems of Vines not peeled, in comparison with those treated otherwise; this is evidence that one is better nourished than the other. From the better nourished Vine we naturally look for the best results; that is why I like to see Vine rods well clothed with bark.

Vines stripped of their bark must expose the returning elaborated sap more to the varying conditions of the atmosphere than when excessive transpiration is prevented by a thick coating of outer bark. All Grape growers with whom I am acquainted who aim at "first class" excellence practise what I am advocating, and the argument adduced above is, I think, sufficient to show that peeling Vines is prejudicial to attaining the highest standard of cultivation. Grapes good enough for home consumption are produced under the peeling process, I am well aware, but that does not prove it is the most correct method. Why not improve in one matter of detail, and so make another step towards securing the highest possible results? Modifying the ways of Nature to suit our requirements is a different thing to unnecessarily destroying the tissues of Vines. As I stated before, the outer bark is given to protect the internal tissues, and any unnecessary interference with it upsets the functions of the plant more or less.

I am glad to say I have only once had to deal with mealy bug on Vines, and that in the capacity of a subordinate. If I had the enemy to deal with now the condition of the Vines would be my guide as to how I should proceed. I am acquainted with many different modes of cleaning Vines, but those treated as I advised, and attended to promptly in other matters of detail, can be kept as free from pests, and produce as good results, as from any other treatment that I have seen. If matters are very bad, I readily grant the treatment must be conducted to meet the case, not adhering to any particular line of action. The treatment pursued by me is attended with every success, and I have no reason to alter my methods, but any person is, of course, free to adopt any other practice he may think best.

It would be interesting to know something of "Erica's" credentials as a Grape-grower, as he criticises my article very keenly; so wishing him a good New Year, I will await the information.—J. J. CRAVEN.



THE WEATHER IN LONDON.—Christmas has come and gone since our last issue was prepared for press, and until last Saturday the weather was very mild. On that day, however, a little snow fell, this being also the case on Sunday. Monday and Tuesday were bright and cold, while in the early hours of Wednesday there was a slight fall of snow. At the time of going to press the weather is somewhat dull and cold. One or two degrees of frost have been registered in the City, but in the suburbs it has been more severe, 10° having been experienced.

— **THE WEATHER IN THE NORTH.**—With the gale of Friday night, almost equalling in violence that of the morning of the 22nd, the weather has undergone a seasonable change. In some of the northern districts much snow has fallen, and roads have been blocked up. While the higher hills have been heavily covered the lower ground in S. Perthshire is but slightly whitened, and for the last three days, up to Tuesday morning, frost of from 4° to 7° has been registered. —B. D., *S. Perthshire*.

— **MESSRS. JAMES VEITCH & SONS** of the Royal Exotic Nursery, Chelsea, have given their procuration to Mr. James Herbert Veitch (who has been with them for several years) and to Mr. John Gould Veitch, sons of their late partner Mr. John Gould Veitch. The training of the two gentlemen named fits them admirably for sharing in the conduct of the great business with which they are now formally identified.

— **DEATH OF MR. JOHN CARTER.**—We learn with much regret that Mr. John Carter of Keighley died on Monday, December 24th, after a very short illness, being in his sixty-ninth year. Mr. Carter was an active and genial man—a thorough nurseryman, having special knowledge on hardy trees and shrubs. He was the introducer of the excellent Raspberry Carter's Prolific. The business will be carried on by Mr. Edward Carter, but under the name by which it has so long been known in the horticultural world.

— **THE NATIONAL AMATEUR GARDENERS' ASSOCIATION.**—The Committee in carrying out the suggestion made at the last monthly meeting, have arranged for the first meeting in 1895 to take place at the Memorial Hall, E.C., on Tuesday, January 8th, at seven o'clock instead of New Year's Day. In coming to this decision they believe the general convenience of the members is being studied. On this occasion Mr. H. A. Smith will give a paper on hardy annuals, and this promises to be a very useful one.

— **FORESTRY HONOURS.**—The "honours diploma" for the science and practice of forestry has been granted by the Grand Ducal Forestry College at Eisenach, in the Duchy of Saxe-Weimar, to Mr. James William Watt, in which Government Academy of Forestry he has been studying. As his name indicates, this dux of the Government Academy of Forestry is the eldest son of Mr. James Watt, J.P., Knowefield Nurseries, Carlisle. Prior to taking his course of study at Eisenach Mr. James William Watt had worked for one season at a large seed establishment at Erfurt, in Germany. Having now taken his degree in forestry he will henceforth be associated with his father, who is widely known to agriculturists as the head of the eminent seed and nursery firm of Messrs. Little & Ballantyne, Carlisle.

— **VEITCH MEMORIAL FUND.**—At a meeting of the Trustees, held on the 19th ult., it was resolved that £10 be granted to the Lindley Library Fund; that silver medals be presented to James Bateman, Esq., F.R.S., "the father of amateur Orchid culture;" to Mr. F. W. Moore, Curator of the Royal Botanic Gardens, Glasnevin, in recognition of his valuable services to botany and horticulture; and to M. Victor Lemoine of Nancy, for his services as a hybridist, and that a Veitch medal and prize of £5 be placed at the disposal of each of the following horticultural societies—viz., the Royal Caledonian, the West of Scotland, York Gala, and Worksop, for products to be competed for at their respective shows, subject to the approval of the Trustees. It is particularly requested that all communications respecting the Veitch medals and prizes should be addressed to the Secretary, Mr. A. H. Kent, 44, Doria Road, Fulham, S.W.

— **MR. EDWARD L. GREENE**, Assistant Professor of Botany in the University of California, has been appointed Professor of Botany in the new Catholic University of America, in the city of Washington.

— **THE MILD WEATHER.**—As showing the mildness of the season, a Long Sutton (Lincolnshire) correspondent reports that a few days ago there was a swarm of bees on the farm of Mr. H. M. Proctor of Spalding, at Sutton Crosses. Such an event in December is believed to be unparalleled.

— **WE regret to record the death on the 19th ult. of Professor ALLEN HARKER**, of the Royal Agricultural College, Cirencester, at the age of forty-six. Mr. Harker was a popular and successful teacher, and did good work, not only at the College but in connection with County Council Technical Education schemes both in Gloucestershire and Bedfordshire.

— **WHERE KEW MEN GO.**—The influence of the Royal Gardens at Kew on other botanic gardens is strikingly shown in a list of the staffs of botanical departments and establishments at home, and in India and the colonies, given in the "Kew Bulletin," Appendix III. Disciples have gone from Kew to the ends of the world to become directors or curators of botanic gardens; indeed, almost every garden seems to have on its staff someone trained at Kew, or recommended by the Director there.

— **KITCHEN GARDEN WALKS.**—My thanks are due to Mr. C. Foxon (page 561) for supplementing my recent remarks on edgings. Without going so far as to consider concrete strips the best "edgings obtainable," I fully agree that they are good in every way, and must admit that it was quite an oversight on my part not to have recommended them in my previous article on this subject. In my younger days I served in two extensive gardens in which concrete strips were in use as edgings, and in both cases they were entirely satisfactory.—KENTISH MAN.

— **THE FORM OF MINIATURE VIOLAS.**—The Viola Conference, in deciding that miniature Violas, in order to be regarded as belonging to that section, should not exceed 1½ inch in diameter, of course meant in width, as was readily understood by everyone present. It was not regarded as a necessity that all blooms should be absolutely circular, although recognising form as a great point; still, in some of the varieties perfection of form is closely attained already. It is a very wise rule and laid down as law just in time, for we should otherwise see the two sections, the large flowered and the miniatures, get hopelessly mixed in the numerous seedlings which have come under notice. I hope to see the "Violetta" type of growth and flowers preserved as much as possible in the miniatures, and that we shall also as much as possible keep out the Pansy blood from our large flowering Violas. We want them of the type of Bullion, Countess of Hopetoun, Sylvia, True Blue, and others of the same habit.—W. DEAN, *Hon. Sec. of the Viola Conference*.

— **PASSIFLORA PFORDTI.**—As far as I know only two kinds of hardy Passion Flowers are now in general cultivation in British gardens—namely, the well known *P. cœrulea* and the more recently introduced white flowered form known as Constance Elliott. A third variety under the above name is now being distributed by a leading London nursery firm. The name, however, I believe to be merely an unauthorised synonym for a beautiful hybrid, raised about seventy years ago in Mr. Masters' garden at Canterbury, by fertilising the flowers of a fine West Indian species named *P. alata* (the Winged) figured in the second volume of the "Botanical Magazine," on plate 66 as far back as 1788, with the pollen of the common hardy variety *P. cœrulea*. This hybrid when it bloomed showed the characteristic features of both parents, and was named *P. alato-cœrulea*. It is well figured on plate 848 of the tenth volume of "Lindley's Botanical Register," which was published in 1824, and is there said to be nearly if not quite hardy, having withstood the frosts of that winter in the open air trained to a wall without injury. My reason for believing that the plant now offered as *P. Pfordti* is merely *P. alato-cœrulea* under another name, is that in the new edition of "Johnson's Gardeners' Dictionary," published last year by Messrs. Wright and Dewar, *P. Pfordti* is given as a synonym of *P. alato-cœrulea*. I have reason to know that the authority for this statement is Dr. Maxwell T. Masters, F.R.S., the greatest living authority on the family of the Passion Flowers. I think the name of *P. Pfordti* should certainly be dropped, as it is unrecognised at Kew.—W. E. GUMBLETON.

— **WEATHER IN NORTH FLORIDA.**—Extraordinarily cold weather prevails in Northern Florida, and has caused damage to the Orange and other crops estimated at 3,000,000 dols. The weather is the coldest experienced since 1835, and thick ice has formed in many places.

— **ENGLISH FILBERTS IN AMERICA.**—Another small consignment of 500 lbs. of the best English Filberts, which are imported in the husks, has just been sent to a well-known American firm. They come in small barrel packages, each of which contains 100 lbs., and sell at retail for 50 cents a pound. These Nuts have none of the dryness or toughness of the ordinary Filberts, but have a crispness and delicacy of flavour which is altogether distinct.

— **BERMUDA LILIAM GROWERS.**—It is announced that the large growers of bulbs of *Lilium Harrisii* in the island of Bermuda have consolidated under the name of the Bermuda Bulb Company, with Mr. Frank Pierson of Tarrytown, New York, as general agent for America and Europe. The object of the combination is, says the "Garden and Forest," to keep prices firm, to supply high-grade bulbs only, and to correct the competition in cut flowers.

— **MESSRS. DOBBIE & CO. AND THEIR EMPLOYÉES.**—The annual social gathering of the employés of the firm met together, by invitation, in the Public Hall, Rothesay, on the evening of December 28th, Mr. Burnie (one of the partners) presiding, supported by Mr. Wm. Cuthbertson, also a partner, 120 sitting down to tea. In a brief practical address the Chairman alluded to the growth of the business since it was established by Mr. Dobbie; and in addition to their extensive seed grounds at Beaulieu, in Hampshire, a large tract of ground has been taken at Orpington, in Kent, for seed growing.

— **THE BLACK CURRANT "MITE."**—Writing from Kingston, Mr. E. L. Martin says—"Would you kindly afford space to draw the attention of all who grow them to the condition of the Black Currant bushes? I have found the Black Currant mite (*Phytoptus Ribis*) both in my own garden and in that of a friend a short distance away, and as we obtained our bushes from different sources, it is probable that the pest is already widely spread in the neighbourhood. Although the mite is invisible to the naked eye its presence is easily known by the abnormal swelling of the buds it has attacked. These vary in size from a small pea to a bean, and all such swollen buds should be carefully picked off during the winter and burned."

— **CHOICE ONION SEED.**—So anxious are seed growers to secure very fine and handsome bulbs of various choice Onions for insuring good seed stocks, that exceptionally high prices are paid for them. It not infrequently happens that in seed production these bulbs materially fail, as, for instance, last year the produce of a score of huge Ailsa Craig, which should have been at least a pound, was not more than a couple of ounces. This was due perhaps to imperfect setting of the bloom owing to excessive rains, perhaps to planting the bulbs in too rich soil, and thus generating a coarse stem growth that is productive of late and imperfect flowering. That these fine bulbs do reproduce exceedingly fine stock there can be no doubt whatever; hence their value. It is a noteworthy fact that whilst these huge bulbs, because so essentially watery, usually keep badly, they are this winter found to be keeping better than are the main crop bulbs. That is perhaps due to the fact that whilst main crop Onions ripened so badly, early planted out ones had a long season, and ripened in good time.—A. D.

— **SAVOY CABBAGES.**—The other day I saw large breadths of Savoy Cabbages, white and bursting, literally useless, and only fit to form food for sheep or cows. The same sort of thing may have been seen in many private gardens also. This comes of the rigid adherence to rule of thumb which characterises so many Cabbage growers who year after year sow seed in March and put out the plants in June or July, so that they may grow strong, produce large heads, and be ready for cutting in the autumn. That is just when such Cabbages are not wanted. When hard weather has, however, intervened and spoilt them, then good fresh Savoy Cabbages would be most valuable. As a contrast to this sort of provision I could but notice what I saw the other day at Hackwood Park, Basingstoke, where Mr. Bowerman had from two quite late sowings of Sutton's Improved Dwarf Curled Savoy large breadths of beautiful fresh, green heads, just turning in, and such as would give delicious small heads for the next three months. These were planted out quite thickly and gave a large number on a comparatively small area of ground.—A.

— **DEATH OF MRS. HARRIS.**—The many friends of Mr. George Harris, Alnwick Castle Gardens, will extend to him their sympathy, as we do, on the death of his wife, who was very dear to him, on the 21st ult. Mrs. Harris was forty-four years of age, and leaves eight children under fifteen years old.

— **RAINFALL IN SUSSEX.**—The total rainfall at Abbot's Leigh, Haywards Heath, Sussex, for the past month was 2.09 inches, being 0.65 inch below the average. The heaviest fall was 0.68 inch on the 7th. Rain fell on fourteen days. Total for the twelve months 35.45 inches, which is 4.80 inches above the average. The maximum temperature was 52° on the 14th; minimum 25° on the 4th. Mean maximum, 45.12°; mean minimum, 35.05°; mean temperature 40.08°, being 2.77° above the average. An open month, with little frost and no snow.—R. I.

— **AMERICAN FLOWER STORES.**—According to an American contemporary, nowhere else in the world are the first-class retail florists' stores so attractively and beautifully arranged with plants and flowers, or so brilliantly lighted up in the evening as they are in that country, and notably in New York. And not only are the flowers the very finest—even a selection of the finest—that can be produced, but the exceedingly pretty, neat, and tasteful way in which they are put up in boxes to be delivered to customers makes the flowers appear doubly fresh and choice; indeed, on opening the box one often has a feeling that it is a pity to disturb the blossoms, they look so sweet and dainty nestling there.

— **NURSERY VICISSITUDES.**—The Leith Walk Nurseries, Edinburgh, and the firm of Dicksons & Company, are well-known throughout Scotland and beyond its borders, yet like many others, especially the older ones, the devouring march onwards of the builders think nothing of clearing away a nursery. The firm of Dicksons & Company was established about 120 years since, but about twenty years ago the Leith Walk Nurseries were required for building purposes, and the offices were removed to their nurseries at Pilrig Park; now a further removal has to be made from there, as a new railway will be made through the nurseries this year, and the firm have been awarded £10,500 as compensation. The site of the new nursery of the firm will be at Liberton, on the south side of Edinburgh.

— **WAKEFIELD PAXTON SOCIETY.**—There was scarcely an average attendance at the last meeting of the Paxton Society held at the Woolpacks Hotel. Mr. B. Whiteley presided. Mr. Pitts, head gardener to D. P. Kendell, Esq., J.P., of Walton, delivered a brief but most interesting lecture, particularly to amateur gardeners, on "When and How to Pot and Water Plants." Mr. Pitts began by impressing on his hearers the importance of having their plant pots thoroughly clean both inside and outside. He strongly denounced the custom of colouring the outside of the pots, as it closes the pores, and he asked his hearers not to forget good drainage. The soil most suitable for potting such plants as most amateurs generally grow should consist of turf, leaf mould, and sand. Some hardwooded plants require firm potting, and others would do with looser potting. He advocated neatness and tidiness in all gardening operations, and strongly recommended amateurs not to fall into the common practice of watering too freely, growing too many varieties of plants, or too large a number. A hearty vote of thanks was given to Mr. Pitts for his interesting lecture.

— **THE METROPOLITAN PUBLIC GARDENS ASSOCIATION.**—This Association held its monthly meeting a few days since, when it was announced that the formation of the riverside garden at the Wharf, Battersea, was progressing very favourably. It was agreed to take steps towards the laying-out of a piece of land in Canning Town, E.; to offer £100 towards the laying-out of a disused burial ground in Chapel Place, Bermondsey; to endeavour to secure two desirable vacant sites in Walworth and Deptford, the Fishmongers' Company having promised £600 towards the former; to offer to make a garden on the Albert Embankment; and to offer to lay out an additional piece of Allhallows Churchyard, London Wall. Amongst other matters brought forward were negotiations for the opening of Arbour Square, E., Munster Square, and Clarence Gardens, N.W., the churchyards of Bromley-by-Bow, E., and St. Mary, Battersea, S.W., and the New River Company's garden in Canonbury; the provision of some open spaces in Southwark; the laying-out of St. Mary Magdalene's ground in Chiswick, and the Friends' graveyard in Bermondsey; and the acquisition of a recreation ground in Hermit Road, Plaistow, E., towards which the Association had collected nearly £300 during the month, leaving a balance of £792 necessary to complete the purchase money.

— **PRESENTATION TO MR. J. D. ABBOTT.**—A very interesting meeting took place at Eynsford on the 21st ult. on the occasion of presenting a purse and illuminated address to Mr. J. D. Abbott on his vacating the position of head gardener at Lullingstone Castle, the country seat of Sir Wm. Hart-Dyke, Bart., M.P. There was a large gathering of friends and neighbouring gardeners. Mr. R. Cannell was unanimously elected to preside, and after having explained the object of the meeting, stated he had great pleasure in handing Mr. Abbott such a high token of respect and goodwill from sixty-eight subscribers. Mr. Cliffe, gardener to Sir Henry James, Q.C., M.P., also expressed similar sentiments. Mr. Abbott responded in a few well chosen words, thanking all most heartily for their kind wishes towards him.

— **GRAPES ON OPEN WALLS IN KENT.**—As promised I send a few particulars about Grapes for the open air, south aspect. The following sorts for this purpose were planted in 1858 and 1862—Esperione, Royal Muscadine, Buckland Sweetwater, Black Hamburgh, and Foster's Seedling. They were planted in the open spaces between wall trees, soil a light sharp loam. Long ripened canes have been left in pruning where space permitted, otherwise young wood was left from 1 to 3 feet. They were reduced from year to year, as Peaches and other trees required the space. The Vines bore good crops of excellent bunches of Grapes up to 1893. Some have since been removed for alterations of the walls. The weight of some bunches as sent to the table were, Royal Muscadine, 1 lb.; Esperione, 1 lb.; Black Hamburgh, 1½ lb.; Buckland Sweetwater, 1 lb., large berries; Foster's Seedling, nearly 3 lbs. Grape tarts were much enjoyed by the family from the fruit that did not ripen well in bad seasons.—**ONE OF THE OLD SCHOOL.**

— **POTATOES IN IRELAND.**—Details of the Government measures to avert an Irish Potato famine are now made known. To prevent delay the Government, through the Local Government Board for Ireland, are prepared to advance money without interest to Guardians for the purchase of seed Potatoes. The various Boards have received instructions as to the quantities of seed which may be sold to tenants whose land is valued at or under £15, and they have been urged to obtain sufficient security for the payment of the price of the seed sold. An abatement of one-fifth is to be made in the price of all seed which is paid for in cash. It is intended to propose to Parliament that the amounts due to the Guardians on account of any seed sold shall be paid by two equal annual instalments, the first of which shall be leviable as a special rate with the first ordinary Poor Rate made after the 1st of July next, and the second instalment as a special rate a year later. The loan will be repayable by the Guardians to the Board of Works by two equal instalments in August 1896 and 1897 respectively.

— **CHRISTMAS FLOWERS AT BELVOIR.**—Mr. W. H. Divers sends to the "Times" on the 29th ult. the following list of plants that were flowering in the open at Belvoir Castle on Christmas Day, 1894:—Aconite, yellow (*Eranthis hyemalis*), Anemone blanda, Anemone hortensis, Aubrietia græca, Andromeda floribunda, Antirrhinum majus, Arabis alba, Borago officinalis, Berberis Beali, Carnation (white seedling), Chimonanthus fragrans, Chrysanthemum (nine varieties), Daisy (single and double), Eccremocarpus scaber, Escallonia punctata, Furze (common single), Geranium Robertianum, Garrya elliptica, Helleborus niger, Helleborus hybrids, Honesty, Iberis gibraltarica hybrida, Jasminum nudiflorum, Laurustinus, Lamium maculatum, Morina longifolia, Meconopsis cambrica, Magnolia grandiflora (not expanded), Marigold (common), Myosotis dissitiflora, Othonna cheirifolia, Polygala Chamæbuxus, Polyanthus (in variety), Primrose (common yellow), Primrose (double lilac), Rhododendron (in variety), Roses China (in quantity), Tea, and H.P., Scabious, Saxifraga ligulata, Snowdrop (common), Stock, Tussilago fragrans, Vinca minor, Violet (common Russian), Violet (double Lady Hume Campbell), Wallflower (Belvoir Castle Yellow), Wallflower (Miss Hope, double yellow).

— **SHIPLEY HALL, DERRY.**—When visiting these gardens a few days ago I was very much astonished at the extensive alterations that have taken place during the last few years. With Mr. Elphinstone (Mr. G. M. Mundy's talented gardener) as a guide and companion nothing could prove more enjoyable to a British gardener than a walk through the magnificent glass structures under his charge. Everything is the picture of cleanliness and high cultivation. The Vines, Peaches, and Figs are already on the move, and in one house could be seen thousands of Lilies of the Valley and Roman Hyacinths in full flower. The Orchid houses are bright with such kinds as *Dendrobium formosum*,

Wardianum, and *nobile*, some of the latter measuring 3 feet 6 inches through; *Cattleyas*, *Lælias anceps* and *Sanderiana*, *Odontoglossums crispum* and *vexillarium*. The *Anthuriums* are a great speciality, and Mr. Elphinstone told me that in a few years they hope to have a unique collection. The plants are of good size, and well grown in a temperature from 55° to 60°. Amongst them I noticed *A. Mundyanum*, *A. sanguineum*, *A. Wardi*, *A. Palmeri*, and others. The adjoining house was devoted to *Eucharis* and *Nepenthes*, the latter including *N. mixta*, *N. Courti*, *N. Chelsoni*, *N. lanata*, and *N. Morgani*. The corridor and model fernery are as pretty as ever, and the handsome conservatory contains some scores of massive Palms and Tree Ferns, the back wall being covered with *Bambusa violascens* and *B. virida metake*, the whole giving a charming tropical appearance.—**GEORGE BURROWS.**

— **WHERE DO OUR BLACKBIRDS GO?**—In "Birds of the Wave and Woodland," Mr. Phil Robinson says, "They rear, in nearly every case, two broods a year—that is to say, there are every year five times as many blackbirds as the year before. According to this, starting with a single pair, a garden ought to have at the end of five years 1400, and at the end of ten years, supposing that one-half died each year, something over 2,000,000 blackbirds. Or, supposing they only rear one brood, there would be over 7000. Suppose the cats eat 6000, there would still be the preposterous number of 1000 left. Where, then, I ask, do all the blackbirds go? It is quite certain that each pair, as a rule, hatches five birds, yet the number of blackbirds does not increase. So that if we say there are only 10,000 pairs of blackbirds in Great Britain, there are at least 50,000 killed or made away with every year. 'Then what are they hatched for?' my child friend might ask. 'For cats,' would be my reply. And yet it seems absurd that 100,000 blackbirds should be hatched every year just for cats to eat. All of which is a mystery to me."

— **THE ROYAL GARDENERS' ORPHAN FUND.**—The last committee meeting of the year of this admirable charity was held on Friday night last. There was a large attendance, William Marshall, Esq., the Chairman of the Fund, presiding. Contributions amounting to £85 11s. 9d. were announced as having been received since the last monthly meeting. Among the sums mentioned were £50 10s. 2d. from a concert at Altrincham; £5 from the Bristol Chrysanthemum Society; £5 from the Scottish Horticultural Association; £2 from the Stockport Chrysanthemum Society; £7 5s. from Ware, and £5 5s. from Mr. Herbst, as well as smaller amounts from collection boxes. The list of candidates (fourteen) for the benefits of the Fund was read and approved, and out of these six (only six) will be elected at the general meeting to be held at the Cannon Street Hotel on February 8th. A discussion ensued as to the eligibility of the children of persons who had been gardeners, but who were not working as gardeners when they died. The decision, in such cases is, under the rules, vested in the Committee, and a motion to the contrary was not carried. A proposition moved by Mr. Wynne, and seconded by Mr. Wright, that members of Committee to be eligible for re-election must in the future attend at least three meetings during the year, was carried. Mr. Richard Dean very properly asked if all the Vice-Presidents were annual subscribers to the Fund, to which the answer was "No." Foreseeing that something was likely to happen, another question was quickly put, "Are they life members?" which elicited the reply of "Yes," and Mr. Richard Dean was satisfied. Mr. Richard Dean then announced a discovery, in tones tremulous and pathetic, of something having appeared in the *Journal of Horticulture* "last February" which did not please him. He evidently forgot for the moment that the *Journal of Horticulture* does not exist for the purpose of pleasing Mr. Richard Dean alone (though always ready to recognise any good work of his that may be apparent), but as the Committee took no notice of what looked like a solemn impeachment, Mr. Richard Dean collapsed. A commendable trait in the character of smart men who make discoveries of time-worn delinquencies is that which may be described as the happy collapse. The Chairman, in his genial way, brought the meeting to a most harmonious close, every member wishing success to the splendid institution (which dispenses about £800 a year in supporting fatherless children), the Royal Gardeners' Orphan Fund. Yet eight widows of gardeners—worthy and respectable men in life—have to be denied the benefits of the charity, and there are by far too many others. Let all help them who can, and start, in some way to be locally devised, at once. Mr. Barron, the Secretary, believes that a large number of small contributions may be collected for the beneficent object in view, and so does the *Journal of Horticulture*, whether Mr. Richard Dean likes what it says or not.



CATTLEYA GUTTATA PRINZI.

THIS is a very charming variety of the old *C. guttata*, and one which will find favour with many growers. The markings of the flowers, as may readily be seen in fig. 2, are very distinct and pleasing. The sepals and petals are delicate creamy yellow, spotted with violet, while the lip is of a bright magenta shade. It was exhibited at the Drill Hall on the 11th ult., by Mr. E. Hill, gardener to Lord Rothschild, Tring Park, when it was deservedly accorded an award of merit by the Royal Horticultural Society.

CYPRIPEDIUM LEEANUM.

Few hybrid *Cypripediums* have shown more variations than the above. Originally raised about ten years ago by Messrs. Veitch



FIG. 2.—CATTLEYA GUTTATA PRINZI.

and Sons, from *C. Spicerianum* and *C. insigne*, it has since been improved by crossing the best types of these well-known kinds, many fine varieties being the result. The dorsal sepal in all these varieties is intermediate between that of its parents, being similar in shape to *C. insigne*, but having the dark line as in *C. Spicerianum*. In habit it resembles the latter, and like it may be grown in the *Cattleya* house in the usual compost as recommended for this genus. The flowers are produced on long slender scapes during the winter months and last well if kept in a fairly dry atmosphere. A superb variety I saw recently, appropriately named *giganteum*, had the dorsal sepal 3 inches across, pure white at the apex, with numerous bright mauve spots near the base. The petals were $3\frac{1}{2}$ inches in length, lemon yellow, the pouch brownish red, the whole flower glossy as if varnished. Other choice varieties are *C. L. superbum*, *C. L. Masserellianum*, and *C. L. maculatum*. The latter has the sepals spotted with bright purple. *C. L. biflorum* is smaller, but, as the name implies, usually produces twin-flowered scapes.

DENDROBIUM NOBILE.

The earliest plants of this grand old *Dendrobe* are now in full beauty. Most growers like to have "a bit of *nobile*" in at Christmas, and very bright and pretty it is at this season. The type is among the best known Orchids in existence, and certainly too familiar to need description. It thrives either in pots or baskets

in the warmest house while making its growth, and should afterwards have as long a season of rest as possible. Like the majority of the genus *D. nobile* must be well exposed to the sun, the latter part of the season especially, to ripen the growth thoroughly and lay the foundation for flowers in spring. The flowers may be enjoyed over a period of quite five months if sufficient plants are grown and introduced to heat successively. If any plants are wanted at a given date they should be placed in heat about eight weeks previously; this will give them time to come to their true colour, which does not always appear at first. The pruning system so freely discussed a few years since has been often advised for this Orchid, but I fail to see the advantage of it unless the growths are wanted for propagating. The pseudo-bulbs of Orchids are Nature's storehouses of nutriment for the subsequent needs of the plants, and to cut these away must to some extent weaken them, the good examples produced by the system notwithstanding.

NOBILE VARIETIES.

Some of our best *Dendrobiums* have been raised by crossing *D. nobile* with others, as, for instance, *D. Ainsworthi*, *D. Leechianum*, and *D. splendidissimum*, while the species is itself variable. *D. nobile albescens* is a pretty form, the sepals and petals being nearly white, the lip similar, with the usual purple blotch in the throat. *D. nobile alba* is pure white, with the exception of the lip marking; this is extremely rare and valuable. A variety named *Ballianum* has been described as wholly of a very light blush, without any markings in the throat whatever. *D. nobile Cooksonianum* first flowered at Heathfield House, Gateshead—hence its synonym, *Heathfieldianum*, and has since appeared in several other collections. In this variety the petals have much the same appearance as the lip, the deep purple blotch appearing on each, giving the plant a very distinct and striking appearance when in bloom. *D. nobile nobilius* is the grandest of all, and a truly magnificent Orchid; in colour it is tinted with bright rosy crimson, with the blotch in the throat of the deepest purple. The original plant of this Orchid is said to have been bought for a shilling, whereas it is even now a scarce and valuable variety. *D. nobile pendulum* is a deep coloured large-flowered form of a pendulous habit of growth. Other good varieties are *Wallisi*, *elegans*, *intermedium*, and *rubellum*.

CYPRIPEDIUM AMANDUM.

This is one of the older hybrids, the result of a cross between *C. insigne* and *C. venustum*. The foliage is deep green, with very faint markings, as in *C. venustum*; the flowers have somewhat the appearance of the latter species. The dorsal sepal is yellow, with green stripes, and many dark purple spots at the base. The petals are yellowish and brown, with deep crimson purple spots. The pouch is bright yellow, overlaid with purple and greenish lines, inside bright golden yellow. This Orchid thrives best in a temperature a little below that of the *Cattleya* house. It should be potted in peat, chopped sphagnum, and loam fibre with a few pieces of limestone; it requires plenty of water all the year round. It must be shaded from bright sunshine, and no water must be given over the foliage. It flowers in November and December, lasting several weeks in good order, thus brightening the new year.—H. R. R.

THE CHINESE PRIMULA.

I THINK we may safely say that this is the most important of all our winter-blooming plants, and when well grown *Primulas* last for a long time in flower. As Birmingham heads the poll in the cultivation of these plants, as evidenced every November at the annual Chrysanthemum show, it may be of use to some readers to detail the method adopted in the Birmingham district by the successful exhibitors. In the front rank of successful growers Mr. C. H. Herbert, the manager of the Sparkhill Nurseries, must take a front place, for he carried off all the first prizes in November for both single and double *Primulas*; and in the opinion of eminent men well known in the horticultural world who were present, such grand specimen plants could not be seen at any other exhibition in the kingdom.

His method of culture is this. He sows the seed as soon as it is matured and gathered. This is a very important point in securing free germination and stout seedlings. It is sown thinly about the end of August in 48-size pots, about three-quarters of an inch from the top, so as to allow a piece of glass to be placed over it, and the pots are placed on a shelf in an intermediate house. As soon as the seedlings can be handled they are pricked off into small 48-size pots; by the end of October they are ready to be placed singly in 60-size, and are kept in a house with a temperature of from 40° to 45°. In the early part of December the plants are shifted into 54-size pots, and still kept in a house of the same

temperature, air being admitted at all times excepting in very severe weather. The plants are kept there until the end of May or early in June, and are then shifted into 7½-inch pots, inside measurement, for flowering. The pots are only three parts filled with soil at first to allow of top-dressing, which I shall refer to presently. This is a most important point in *Primula* culture, quite opposite to what is generally practised, as when we see the plants on the surface of the soil on a level with the rim of the pot, and with short sticks round the plants to keep them steady, a practice altogether abandoned by the Birmingham growers.

The plants are then placed near the glass in a cold frame, the frame being so mounted that air can be freely admitted at top and bottom; in fact, the lights are never closed. The plants remain there until some time in September, according to the weather, but are never watered until really needed, strictly avoiding too much moisture and providing ample drainage. Syringing is not resorted to, and the plants want very little attention during the summer, just growing them as hardy as possible, and that the foliage is not injured. In very sunny weather a light shading is employed and an abundance of air afforded.

The plants are top-dressed early in August, filling the pots nearly to the rim. This serves two purposes—encouraging the formation of surface roots from the base of the stems, and steadying the plant so that sticks are unnecessary. Burying the base of the plant in this way may seem to be an odd practice to some, but I may as well say here—try it.

The plants intended for exhibition, or as fine specimens, are placed in a well-ventilated, light span-roofed house in September, the lights opening on both sides, as well as the house being provided with top ventilation, air being constantly admitted, except when very severe frost is experienced. Heat is turned on if the weather is very damp, but air still remains, and of course a little heat is afforded in very frosty weather, but when *Primulas* are grown hardy, as I have indicated, a little frost does not seem to hurt them. Under such treatment the plants make steady progress, producing large stout foliage of unusual thickness, and of a good colour, clean, and free from any blemish on the margin, as is so often seen. But to have perfectly well grown symmetrical specimens the foliage must be carefully pegged down so as to allow free play to the trusses of flower buds, as they will then rise freely, the buds thus unimpeded by the foliage becoming large and well formed, the mass of bloom being also easily trained with scarcely any trouble so as to form a pyramidal head of flowers.

The soil used is good turfy loam, leaf soil, and thoroughly decayed cow or stable manure in equal parts, kept as rough as possible for the purpose, and about a 54-size potful of Clay's fertiliser or guano mixed with 6 bushels of the compost, adding a sprinkling of old crushed mortar and sand, so that the soil may be kept open and porous to allow the water to pass readily away. The roots like the old mortar, and water-logged plants very soon go wrong. The pots are well drained, and the crocks slightly covered with moss, thus keeping the drainage quite free from the soil. The pots are quite clean when used. No liquid manure is given in the early stages of growth, not until the plants push up their flower trusses, then a little guano or Clay's fertiliser is dissolved to form a weak solution. Such manures are never used in the dust state, as that leads to a clogging of the soil.

With this treatment Mr. Herbert, year after year, secures superb specimen plants 2½ feet through, and from 18 to 20 inches above the pots. They bloom in October, and through the winter from seed sown in August of the previous year, perfect pictures of health and admirable culture, the flowers ranging from 2 to 3 inches in diameter.

At the late Chrysanthemum show in the Birmingham Town Hall Mr. Herbert had in his winning twelves some fine seedlings now being circulated, which will bring him fame as a raiser, such as Princess May, Duke of York, Fairy Queen, and Mont Blanc, all very beautiful. Her Majesty is also a grand flower. The Birmingham standard enforces size, form, and great substance in the flower, freedom of bloom, and robust habit in the plant. The example figured is from a photograph.

—WILLIAM DEAN.

INTERVIEWING A NOTED GRAPE GROWER.

IN my communication on page 578 last week I gave the credentials that entitle Mr. J. J. Craven to the above description, but I ought to have said he won the prizes there named at Trentham. Passing from the subjects before mentioned I asked Mr. Craven what he had to say about the depth of Vine borders? He replied: "I think 2 feet 9 inches ample, as a rule, with about a foot of drainage. In light soils if borders are made of less depth, especially inside, they dry too quickly, but cultivators should be guided by local conditions. I work to no hard and fast rule. Borders should never be sunk to the ground level, but raised partly above it,

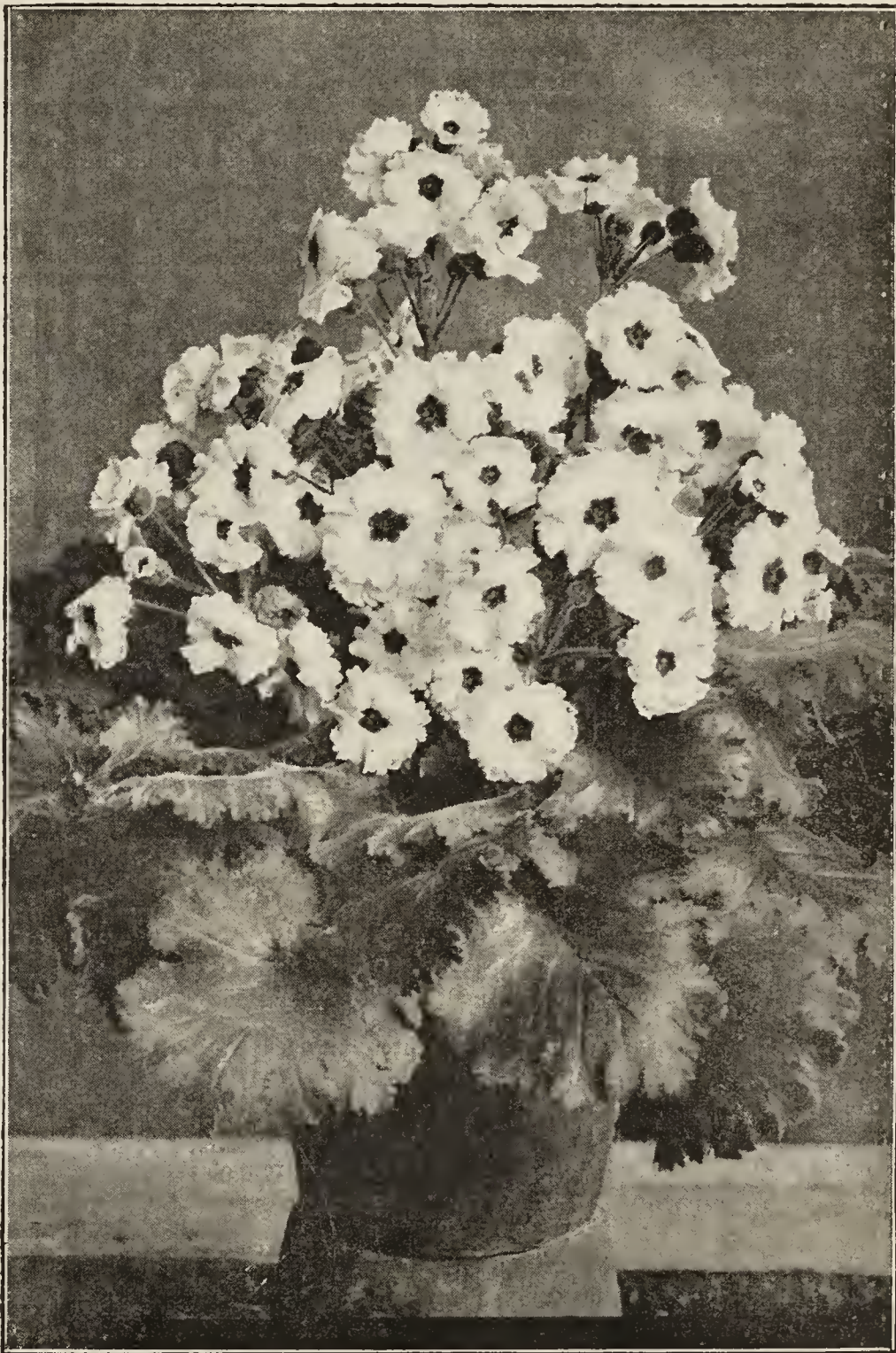


FIG. 3.—A BIRMINGHAM PRIMULA.

especially in low damp positions. When so made they are warmer and promote more vigorous root action."

What do you consider a good compost? "Good loam, lime rubble, charcoal and bonemeal mixed in proportion to the quality of the loam is very good, but not too much charcoal as it is apt to go sour. I do not believe in employing wood ashes in making borders, on account of the danger of fungus arising from small twigs not thoroughly burnt or charred. I have had bad experience of fungus attributable to that cause, and would prefer to use it as a top-dressing. Spent Mushroom beds and leaf soil I would not employ for the same reason. Vines should be planted 4 feet apart to obtain the best results, spreading the roots out as far as practicable, and not planting with the ball of roots nearly entire."

We next touched upon the pinching or stopping of young

Vines, and Mr. Craven said they should be stopped at two joints above where they are to be cut down, then allowed to make as much growth as can be exposed to light, or to grow at will the first year. He is not particular as to stopping two joints beyond the bunch of Vines in bearing, or to one or two more. Care is taken in the case of Vines with feeble root action not to rub out the bud at the point of the lateral or sub-lateral, as it is considered better to encourage such Vines to grow freely for a season or two, and crop lightly. The utmost pains is taken at all times to preserve the foliage in the best possible condition during active growth, as injury to the leaves means poorly elaborated sap, consequently impaired vitality. When vigorous Vines show abundance of bunches his practice is to cut off all the largest to begin with before flowering, leaving very few more than will finally remain for the crop; the whole energies of the Vine is then centralised to that end.

Temperatures received our attention now. Much heat during the flowering period is not approved of. The atmosphere of structures are kept in a congenial state, and so long as the temperature is sufficiently high to disperse the pollen that is regarded as sufficient. Vines suffer in parching atmospheres, and in Mr. Craven's opinion a good set of fruit depends more upon well nourished buds the previous season, with good root action, than upon temperatures. Vines, he says, should be grown steadily from start to finish, so as to solidify every tissue, with air judiciously applied on all favourable occasions.

You ask about various manures? "Well, I should vary the food as the Vines and condition of the soil indicates. This result can only be obtained by a close study of the plant. Vines here are rarely watered twice with the same kind of food. Thomson's chemical Vine manure is good. I believe too much liquid manure is detrimental to finish of the fruit, especially in Hamburgs. In point of first class finish a plain substantial diet is by far the best."—R. P. R.

(To be continued.)

OLEARIAS.

WE have pleasure in publishing the following notes, the first from Mr Divers in answer to an inquiry, the second by the closely observant Mr. W. E. Gumbleton:—

OLEARIA GUNNIANA.

THIS plant was at one time known as *Eurybia Gunniana*, but the latter name is now discontinued. It is a beautiful evergreen shrub with grey foliage and white Daisy-like flowers, which are produced abundantly in attractive sprays during May and June. Being a native of Tasmania it is only partially hardy in Great Britain, and is liable to be killed during severe winters; it should therefore be planted against a warm wall, where it can also have a little covering during severe frost. It is not particular as to soil provided it is not a stiff clay, but a well-drained site should be chosen, and if the soil does not naturally contain any small stones it is advisable to mix some small pieces of limestone or broken bricks with it when planting, as these will materially assist the plant to withstand the cold weather. Messrs. Veitch, of Chelsea, grow this *Olearia* well in their Coombe Wood Nursery. A good plant of it at one time grew in the Edinburgh Botanic Gardens (see page 519) and is probably still there, but it is by no means commonly met with. When once established in a suitable position it grows freely. Upwards of eighty species of this family have been described, but very few of them are under cultivation, and much confusion has occurred among the names of them.—W. H. DIVERS.

OLEARIA DENTATA.

AS the above-named shrub has recently been referred to in your columns by Mr. Divers of Belvoir and also by another correspondent, I think it may interest some of your readers to know that the shrub in question is not *O. dentata* at all, but what is figured in the "Botanical Magazine" on plate 7065 under the name of *O. macrodonta*, which name had to be coined for it at Kew some years ago, when I sent flowering specimens there to be named. This name, however, has now had to be cancelled, as the shrub was found to be identical with what was known in New Zealand as *O. ilicifolia*, which name of course it must henceforth bear in all correctly named shrubberies and collections. There is another species of *Olearia* in cultivation in some British gardens under the name of *O. ilicifolia* with much smaller and more acutely crimped leaves, and more straggling whitish flowers of but little beauty, but this also is incorrectly named, its correct name being *O. myrsinoides*. I grew it for several years, but have now lost it without much regret. The true *O. dentata* is figured in the vol. 93 of the "Botanical Magazine" on plate 5973, and is a most beautiful shrub with large cupped pale rose-coloured flowers. It is a native of New South Wales, and alas! not hardy in the United Kingdom save in one or two exceptionally favoured localities such as the Scilly Isles, whence I have received it from the celebrated gardens at Treco Abbey, but could not keep it alive through the winter even on this mild seaboard of the South of Ireland.—W. E. GUMBLETON.



CHRYSANTHEMUM BRIDE OF MAIDENHEAD.

THIS Japanese Chrysanthemum is undoubtedly a seedling from *Avalanche*, and closely resembles its parent in many respects. *Avalanche*, like all Japanese varieties that have been in cultivation ten years, is gradually deteriorating in constitution. The quality of its blooms are nothing as compared with those produced for the first few years. In spite of the number of white flowered Japanese Chrysanthemums, we cannot afford to lose altogether one of the type of *Avalanche*. *Bride of Maidenhead* comes then at an opportune moment to take the place of the old favourite as an exhibition flower. So closely do they resemble each other that I should not like to advise an exhibitor to stage blooms of the two as distinct.—E. MOLYNEUX.

LESSONS OF THE PAST SEASON.

ALTHOUGH many exceedingly fine specimens in the Japanese section were seen during the past season, it cannot be said that, taken as a whole, Chrysanthemums were equal to those of some previous years. Exhibitors are inclined to say year after year, "I do not remember having staged a better twenty-four than this." They are too apt to forget the new varieties that very much enhance the appearance of a stand as compared with some that are now ignored by exhibitors.

Having seen many collections of plants during the growing season, and the blooms produced by the plants at exhibitions, I am confirmed in the opinion that plants which are denuded of their primary leaves to any extent by the end of September never produce satisfactory results. I have also noted where the plants were well clothed with foliage of the proper kind, and all other cultural details attended to at the right moment, the best blooms were produced. Readers of the *Journal of Horticulture* must not suppose that all the good blooms find their way to the exhibition tables. In a garden in Devonshire I saw the finest example of Charles Davis that I met with in a long tour of the best shows. The remarkably healthy foliage which this plant carried beyond the day when this bloom was cut was another instance of the advantage of perfect leaves to aid the plants in supplying the expanding blooms with the desirable nutriment which brings them to perfection.

Much loss of the foliage is traceable to the long-continued wet and sunless weather experienced at various times throughout the growing season. An excess of moisture at the roots during periods of adverse weather has much to answer for. Chrysanthemums are moisture-loving plants no doubt, but they can have too much at the roots all the same. The plants will withstand more dryness in the soil than many persons imagine.

Mildew has been a primary cause of loss of foliage in some collections of plants this season. This fungus has been particularly active, and where in the slightest degree neglected has done irreparable injury to the plants. Neglect to apply the usual remedies instantly is a mistake which many persons have had to pay dearly for this year, and should prove a reminder for another season.

The employment of pots considerably larger than is necessary has in several instances nullified other good points in culture. Especially was this noticeable with plants of the Queen family. Many of them were growing in pots 10½ inches in diameter, certainly 1½ inch too large, especially in a season like the past. Plants growing in large pots have not the same opportunity to mature their growth as those in smaller pots; they more resemble those growing in the open. Without maturity obtained gradually it is useless to expect satisfactory results.

As was to be expected after such an unfavourable season for the growth of the plants, complaints of the blooms damping was rife. The premature decay of the blooms was decidedly more active where the precaution of warming the hot-water pipes, especially during the night, was neglected. It is a well known fact that a cool surface condenses atmospheric moisture. If cultivators still ignore this truth, and persist in acting contrariwise, they court failure and disappointment.

It is hoped that beneficial lessons have been learnt during the past season on the subject of staging the blooms in a more sensible manner. Less of the "flopping" plan has been seen, and the more rational method of raising the blooms a few inches above the stands more generally adopted. In spite of the great advantages supposed to accrue from the use of enlarged stands these have not been made so much use of as might have been expected. Perhaps exhibitors have found that it is a mistake to arrange blooms upon a stand that is much too large for them.

I observed that many of the leading exhibitors employ auxiliary tubes for the purpose of raising the back row of blooms well above those in front, so that every part of them could be seen, and not only the blooms, but the water in which they were placed was raised also. This is a step in the right direction; any plan that raises the blooms out of the water is not a sensible one.

Exhibitors who do not adopt rational methods of naming their blooms would do well to take a lesson from those who do. Many exhibitors

are much too careless in this respect. Some of them simply write the names of all the blooms in one class on a slip, it may be half a sheet of notepaper, and lay it on the stand, to be swept off by the first crowd of visitors that pass by. I trust all those who practise this slovenly method of naming their blooms will take a lesson from others who improve their stands by a simple wire and card arrangement, not forgetting neatness in writing and accuracy in spelling. The way in which many names are rendered is deplorable.—E. MOLYNEUX.

QUESTIONS FROM INDIA.

WOULD you please reply to the following queries in your valuable paper, and oblige?—I find that after *Chrysanthemums* have finished flowering that I am out of flowers for November and December—rainless, cloudless months, with a temperature ranging anywhere from 30° to 70° Fahrenheit in the twenty-four hours. Snow covers the ground all January and February, melting in March, when *Snowdrops*, *Hyacinths*, *Crocuses*, *Narcissus*, *Primulas*, and other flowers immediately appear. No greenhouses or flowerpots available. What bulbs (or seeds) should I get that will afford plants to flower in November and December?

How are Figs and Filberts propagated? I should be glad of rather full, easy, and plain directions as to how to increase the number of my Figs and Filberts, also Japanese Khakhi, a sort of Persimmon (*Diospyros Kaki*)?

Though all English and French fruits do well here, Apples especially, I cannot get Plums to grow up into big healthy trees, though they produce plentifully fruit of good size, flavour, and colour. They always look sickly and dwarfed. The soil to the best of my belief is composed of sand and humus. Clay spreading does not appear of much effect, nor ashes, farmyard manure, or fowls' dung. What agricultural chemical manure would you advise my giving the Plums to produce large healthy trees, like my Apple, Pear, Peach, Apricot, and Cherry trees? Ten years ago I put down one Raspberry and one Blackberry, now they are worse than the rabbit in Australia. I cannot again eradicate them dig as I may.

The extreme annual temperatures here are (in the year) from 20° to 85° Fahrenheit in the shade; elevation 6500 feet above sea level; sunlight eleven hours on the longest day, seven hours on the shortest day; latitude 32° N.; longitude 77° E. of Greenwich. January, February, and March rainy months (snow or rain); April, May, and June dry months; July, August, and September rainy months; October, November, and December dry months. Wheat and Barley sown in September and October, reaped in June.

With respect to the Apple from India, R. C. Lee (page 369, October 23rd, 1890), I sent you, I have since discovered it was a Blenheim Orange. I have Warner's King. They grow a large size here, from 1 lb. to 2 lbs. in weight, left to themselves, without any care or attention; but it is a worthless Apple, as it will not keep.

The natives of India will not buy Apples, because they say they are not sweet enough. Which is the sweetest Apple grown in England? Is it Sugar and Brandy? I have all the sweet Apples you mentioned for me some years back.—A. BANON, *Kulu, Punjab*.

[*Chrysanthemums* keep up a supply of bloom in this country till Christmas and after under glass. The late varieties would probably answer your purpose to a certain extent, but as you want variety it is likely the following would flower at the time you name:—*Cyclamen hederæfolium*, *C. h. album*, and *C. coum*; *Helleborus atro-rubens*, *H. orientalis*, *H. niger* and var. *angustifolius*, and *altifolius*; and *Schizostylis coccinea*. Wallflowers from early sown seed would probably flower during the late autumn, and as a wall plant *Jasminum nudiflorum*. *Freesia refracta* and var. *alba* bulbs planted in July might also afford serviceable flowers, but it is always difficult to get any flowers (except under glass) at the "fag" end of the season. Perhaps some of our correspondents can add to or improve the list.

Figs are easily increased by cuttings, layers, or suckers. Choose for cuttings the most short-jointed parts of the previous year's growth of any handy length, say 6 to 9 inches, with an inch or two of the old (two years) wood attached, removing the buds from the part to be buried in the soil, which should be two-thirds the length of the cutting. If inserted outdoors in October, or as soon as the leaves fall, in sandy soil, and some litter is thrown on the top in severe weather, uncovering when the frost and snow are gone, the cuttings will start into growth with the early summer and be fit to transplant by the autumn. All that is needed in layering is to bring a branch down to the ground and lay about 6 inches of the two-year-old wood in the soil, securing it with a peg, and the young wood to a stake in as upright position as possible without breaking. After a summer's growth the layer will be sufficiently rooted for detaching from the parent and planting where required. Fig trees generally throw up young shoots from the base below ground; these, if carefully removed with a portion of root-stem (its own) and roots attached in the autumn or early spring, often make useful plants.

Filberts are propagated by suckers and layers. The suckers are usually produced abundantly by Filbert trees, and against these the cultivators wage war, as the more suckers, as a rule, the fewer nuts. When, however, stock is required, the most promising suckers are let grow—those most distant from the stems. These, in one year, form nice plants, if left two years are strong and fit to set in the permanent quarters. They are detached in autumn with as much root as possible, and planted where desired. Layering is seldom practised; for that

purpose it is necessary that the tree or trees be cut off close to the ground, so as to cause the production of a number of shoots, which are layered when one or two years old, each shoot being bent down to the ground, cutting it about half through behind a bud upwards, splitting the shoot about an inch and inserting that part 3 or 4 inches in the soil, securing there, and with the cut part open with a peg, making the soil firm. After a year's growth the layer will be well rooted, and may be detached and planted in its permanent quarters.

Diospyros Kaki is readily increased from seed, or particular varieties may be propagated from cuttings of half-ripened wood, inserted in sandy soil, kept moist and shaded, or ripened shoots (with a heel) will generally strike if inserted in the autumn.

As a chemical manure for the Plum tree use bonemeal, five parts (lbs. or cwt.), kainit, three parts, mixed, applying 2 ozs. per square yard (or a little more), 4 lbs. per rod, 5½ cwt. per acre. This is best given in the early winter, and pointed in very lightly. When the buds commence swelling in the spring supply nitrate of soda (powdered) at the rate of 2½ lbs. per rod, but it is best to apply the quantity at two dressings, half at the time named and the remainder as soon as the fruit is set.

Golden Harvey is one of the richest of British Apples, being "one of the best for cider; and from the great strength of its juice, the specific gravity of which is 1085, it has been called the Brandy Apple"—(Dr. Hogg's Fruit Manual). Sugar and Brandy, however, excels it for "taste"—sweetness; it is considered by some persons to be so sweet as to be sickly. It is esteemed in Lancashire as the sweetest of summer Apples, but it is not so good everywhere as it is there.]



NATIONAL ROSE SOCIETY.

I AM not about to gratify Mr. Grahame by attempting to answer his attack, which he pleasantly describes to some of us as driving a big nail into the coffin of the N.R.S. I suppose it is big enough to go through me first and then to finish off the Society. I do not feel any the worse for it, and expect the Society will survive it. I, however, have two observations to make; the first is that I am very much surprised that Mr. Grahame should think it worth his while to notice its proceedings either at the annual meeting or at the Committee, the former of which he describes in his correspondence as a teapot meeting, and the latter as a screaming farce; the second is that in both of the cases in which I had to act in opposition it would have been far more in accordance with my personal feelings to have taken a different course. Of course my judgment may have been wrong, but my motives were simply what I thought best for the Society.—D., *Deal*.

N.R.S. SOUTHERN PROVINCIAL MEETING, 1896.

MAY I say a word or two on this subject in reply to Mr. Jeans' letter? If priority of claim has anything to do with the selection of a locality Reading surely may expect to be considered. I believe, as a matter of fact, that it was the first town with which negotiations were carried on with reference to the 1894 show, but Windsor put in such a strong claim that Reading for the moment lost its chance. The Reading Rose growers (I only wish there were more of them!) were naturally disappointed, but took comfort in the belief that at the first chance their town would have the coveted honour of welcoming the N.R.S.

Immediately after the November Committee meeting I had an intimation that if Reading now renewed the invitation for 1896 it would probably be favourably considered. An invitation was sent accordingly, and Mr. D'Ombraim attended a Committee meeting of the Reading Horticultural Society the day before the N.R.S. general meeting, with the result that he was able to say at the meeting that the matter was taken up *con amore*. Not only was there no dissentient voice heard, but everyone I spoke to expressed themselves strongly in favour of the proposal.

The fact of the meeting, according to Mr. Grahame, being only a "glorified Committee meeting" seems to me rather to add weight to its decisions.—J. T. STRANGE, *Local Secretary, Aldermaston, Reading*.

RULE 13.

MR. GRAHAME in his letter of last week's issue respecting rule 13 kindly takes up the cudgels for the trade. I think that in these days of progress the men who come to the front as big men are large-minded enough not to ask for protection from the small amateur, well knowing that the wider the love of flowers and flower growing spreads the better for them, and that no little petty rule is needed to defend the strong from their weaker brethren. I think if Mr. Grahame were to ask the big men "What protection they wanted," the answer would be, Protect me from my friends, who look on our silent strength as a proof of weakness.

In answer to the personal reference (a great mistake I venture to think on Mr. Grahame's part), I have never exhibited under false colours, nor do I intend to do so; but knowing that rule 13 is widely set

at naught, I cannot see the use of allowing it to remain a dead letter, at the same time its enforcement would lead to endless dissension, and be most prejudicial to the interests of the Society. Doubtless the rule was originally framed as a protection for the small grower and in order to prevent large growers from sweeping the board.

The new and most sensible regulations for dividing exhibitors into classes according to number of plants grown by them has rendered the original rule quite obsolete. These regulations seem all that is necessary, bad faith in keeping them is easy of proof; while the distinction between amateur and professional when two-thirds of the flowers exhibited in the amateur classes are grown by professional gardeners is simply ludicrous. The true amateur is not afraid of meeting professional skill, but professional numbers, and would be quite willing that the professional gardener should compete against him with flowers grown in his "own cottage garden."

I plead in the best interests of the Society, and for the welfare of all true amateurs, in the hope that every year may see the membership of the National Rose Society largely increased, and the pleasure experienced by the enthusiastic Rose grower more widely known.—A. F. GRACE.

THE CURRENT QUESTIONS.

THE Rose analysis may, I think, as "Storm in a Teacup" suggests, be now dropped. I would only point out to Mr. Mawley that what I suggested was not the doing away with his present system, but merely the adding beside it, in a separate column, the actual figures.

I should advise "Gleaner" to entirely mistrust his friend's account of meetings in future, as he has in two cases at least managed to make members say exactly the opposite of what they did say, which does not tend to a right view of things. He says that on my resigning my seat on the Committee I was proposed as a Vice-President, and that "to raise a laugh, the prospective Vice-President replied 'That is what I wanted.'" I hope that if I had been cad enough to think such a thing I should not have been so stupid as to say it. What I did say was "Sorry I spoke," honestly intended at all events to mean the exact opposite of what is attributed to me, though no doubt poorly and insufficiently expressed. But I could not at the moment think of anything else to say. I could not return thanks before I had been elected.

Then as to the gardeners—surely there is here a misunderstanding. I took the resolution to be against gardeners showing their employers' flowers in their own names only, and that the right would still remain to them, as heretofore, of showing in their employers' names with their own (if necessary) added as gardeners. This resolution I voted for, and shall continue to do so, if that is what was meant.

Then as to Mr. Grace's extraordinary letter, "Gleaner's" friend states that Mr. Lindsell said "he would read the paragraph from page 536, although it rather gave his case away." I understood Mr. Lindsell to say (I was sitting actually next him), "it rather gave *his* case away," meaning, of course, Mr. Grace's. That Mr. Grace's letter did give his own case away seems to me to be plain enough; in fact I fancied it, I regret to say, a stronger argument in favour of the enforcement of regulation 13 than the terms of Mr. Lindsell's motion. We shall be happy to hear "Gleaner's" own ideas, and his comments upon what he has heard with his own ears, but this hearsay business he will find unsatisfactory to himself as well as others, for we shall hold him responsible.

Mr. Grahame well points out the astounding position taken by Mr. Grace, of which a great deal more must be heard. Surely "Storm in a Teacup" does not realise it. He has made another shocking bad shot, and he must not call me "parabolic," for that is his own parable this time. Mr. Grace (page 536) does not object to regulation 13 itself, but to Mr. Lindsell's motion that it "shall be repealed or enforced." He tries, in an astonishing manner, to point out reasons why it should not be enforced, but does not suggest or apparently approve of its repeal.

Another absurd point is that there is nothing which Mr. Grace says the humble amateur wants to do which he may not do at present, for he does not mention exhibiting. He may grow, and prune, and bud, and sell his Roses as much as he likes, and nobody will interfere with him. It is only when he wants to exhibit as an amateur that regulation 13, as it stood before, is against him. And how on earth then could Mr. Lindsell's motion "that it be repealed or enforced" have any "disastrous effect" upon him or anyone else, unless he deliberately purposes to exhibit contrary to the regulations?

I am sorry to disagree with Mr. Grahame upon a minor point in this matter. He says (page 566) "It is not an amateur's duty to fight their (*i.e.*, the trade-growers') battles." Now I think it is, and my idea of the National Rose Society is that amateurs *should* make it their business to defend the rights and privileges of the trade when infringed by amateurs, for it is very difficult and awkward for the trade to speak in their own defence. And I feel sure that the professionals on the other hand would, if any case should arise of the rights of amateurs being infringed by a member of the trade, defend us in like manner.

I hope to be permitted still to wear in general the old coat ("W. R. Raillem") which I have become used to, but on this occasion I am forced by "Gleaner" to sign myself.—A. FOSTER-MELLIAR.

P.S.—I am very sorry the above communication was not in time for last week's number, as it is not pleasant to feel that such an extraordinary imputation as that of "Gleaner's" has been left unanswered. Mr. Grahame (p. 585) "congratulates 'Gleaner' on his most admirable *résumé* of the proceedings"; but when it is remembered that Mr. Grahame acknowledges he was not present at the meeting, and that "Gleaner" gives us to understand, in his opening and closing sentences, that he was not there either, the value of such commendation may be fairly appraised.—A. F. M.

NATIONAL ROSE SOCIETY—THE PORTSMOUTH ROSE SHOW BLUNDER.

THE *exposé* by Mr. Jeans in the last issue of the Journal (page 585) of the action of the Secretaries (as I consider Mr. Mawley is involved in these proceedings) in the Portsmouth question should cause some mental perturbation to these officials if they are capable of properly seeing the wrong they have done, in a most discourteous way, to those interested in that proposed meeting. Both the Secretaries were well aware, and for some time, that Mr. Spittal was strenuously exerting himself to get the Portsmouth authorities to invite our Society to hold their southern show there in 1896 (more than six weeks ago I saw the correspondence that had then passed between Mr. Mawley and the Vicar of Havenstreet, Isle of Wight), so I distinctly say that there has been little short of a deliberate cabal got up, and the Reading folk, who have no claim so soon after the Windsor show, *sought* after in order that the offer of the Portsmouth Council might be opposed.

The reason for the rejection of Portsmouth, I suppose, was given by Mr. D'Ombraïn at the annual meeting, as he seems to have been the prime mover in opposing everything; but it would not bear one minute's investigation, and I can only assume that it was stated with the belief that no one in the room had any knowledge of the true position. I hear it was stated that Portsmouth has little or no proper railway facilities. That such an assertion could be accepted by any business men (and I assume that the trade members of the Society call themselves business men), with any knowledge of the railways in this country, passes my comprehension. As a mere matter of fact, which can be easily tested by reference to an "A B C" or a "Bradshaw's Railway Guide," two railways run directly to Portsmouth—viz., the Brighton line and the South-Western. The Brighton line is in direct communication with the North-Western at Clapham Junction, both railways using the same platform; and it is also in direct communication with the Great Eastern, Metropolitan, Midland, and Great Northern at New Cross. The South-Western is in direct communication with the Great Western, of which fact I should think even children (not to speak of grown-up people or so-called business men) are aware, as Her Majesty the Queen invariably goes over the Great Western Railway and runs on to the South-Western when going to the Isle of Wight, twice every year. I think this answers the imprudent assertion, safe enough when stated before an audience apparently unable to see its absurdity, that Portsmouth has not good railway facilities. However, it is plain that this assertion was merely used as a means towards an end, and that end was, for some occult reason, to have the southern show at Reading—eighteen miles from Windsor, and no more a southern town than Gloucester! I most unfortunately was unable to be at the meeting on the 13th ult.; no other subscriber to the N.R.S. who is a member of the Stock Exchange was present, it being the payment day of an important settlement, otherwise I certainly should have flatly contradicted this untrue statement about want of railway facilities to or at Portsmouth. But is not the foregoing fiasco on a par with everything which has most recently, not to speak of the past, been characteristic of the management of the National Rose Society?

In one of your contemporaries some months ago I compared the progress of the Royal Horticultural Society since 1887 with that of the National Rose Society in the same period. The contrast is absolutely ludicrous. Progression *v.* Stagnation. Why is it so? Because one Society is managed by capable men; that their Secretary is a man of indomitable perseverance and grit, one of the ablest managers of any Society in England, well seconded by his Assistant Secretary, and that the R.H.S. is run on business principles. In contrast I may sum up the position and management of our Society in one line—it is just the opposite of the R.H.S. The policy of one Society is fixed, that of the other is vacillating. What is done at one N.R.S. Committee (when you can find where it is sitting!) is frequently undone at another. What is considered an exploded system, such as having two Committees, in one year, is applauded and restored the next, and so on *ad infinitum*.

An anonymous correspondent writing recently to you stated that the Society was to be congratulated on its doing so well in 1894, because trade has been in a disastrous state. I do not suppose your correspondent is an authority on financial matters. In fact he plainly shows by his statement that he is not so. If any of your readers know anything about city affairs, they know that both in the press and in private circles it has been long accepted as correct that trade in 1894 has improved and still maintains that position. This is to be read daily, weekly, and monthly in the city papers and magazines, and it is quite true. The "Financial News," in its review of the year, published on December 31st, closed with the following sentence: "The year closes with every indication of improving trade and encouraging conditions, and the New

Year will dawn to-morrow with more hopeful auguries than it has been our lot to chronicle since the calamitous crisis which darkened the close of 1890." Anyone who is observant knows this for himself—and yet now has the N.E.S. done? Gone back in membership and financial position. What is the cause? That there is no "go" in it, that its local Secretaries and its management do not work in an intelligent way, and not in my view for its best advancement, and that their recent action to one of our most valued members and other blunders, such as that of the postponement of the annual meeting, have only intensified the disgust felt by many. By whom was that annual meeting attended? By thirty-seven persons, thirty-three of them on the Committee!

At one time no man was more enthusiastic to advance the Society's interest than I was. I have proved my interest in a substantial manner. I would gladly give further proof of my interest in the Society as distinct from its management; but the action of the senior Secretary in securing the non-election of Mr. Machin to the Vice-Presidentship, on a plea of "no room," which he immediately stultified by proposing another member for the position, and the action of both Secretaries in regard to the Portsmouth Town Council, would drive all enthusiasm, or the interest remaining, out of me even if I could believe that their conduct when exposed, as it has now been by Mr. Jeans and "Gleaner," meets with the approval of anyone who considers he takes the slightest interest in the well-being and progress of the National Rose Society.—CHARLES J. GRAHAME.

THE MAY FROST.

THE severe frost which did so much damage to rosarians about May 21st seemed at the time to call forth many inquiries as to what steps should be taken with the plants. Some growers recommended cutting the injured shoots off, others advised waiting until the trees had made a natural break, and then removing what was absolutely dead.

Fortunately my Roses were only very slightly touched, and therefore I cannot speak with much personal experience; but as many of my friends were badly hit, I was able to see how the two methods answered.

The conclusion I arrived at was all in favour of the latter mode of treatment—viz., leaving the plants until they commenced to break of their own accord. This plan I know was not generally adopted, as Mr. Grahame, in your issue of June 7th, page 455, wrote that he had at once pruned away all frost-bitten shoots, and as he was supported by Mr. Lindsell he had the highest authority on his side. The specimens I saw which were cut back never seemed to recover until the autumn, but those left alone soon recommenced growing. Doubtless the severe pruning was too great a shock to the plants after the great check they had received from the frost.

We, of course, all hope that such a disastrous visitation is not in store for us again next year; but as there is frequently a sharp frost towards the end of May, I think many of your readers would like to know what to do if similarly situated. Perhaps some of our big growers will kindly give us the benefit of their experience and advice?—R. M. D.

ANALYSING THE ANALYSIS.

ALTHOUGH rival queens have entered Flora's kingdom the recent discussion—the analysing of the analysis—plainly shows that Rosa regina is *par excellence* the Queen of Hearts. A rosy subject is apt to resolve itself into a thorny one. Yet it is pleasing to observe in the varied criticism of the analysis, that the labour entailed in its construction has not been overlooked. As one afar off taking a distant—mayhap a broader—view of the question, I may be permitted to present as aspect of it possibly not apparent at close quarters.

Some measure of credit being allowed to the labour side, it may also be added that "E. M." has shown a liberal spirit in laying bare his analysis to the skeleton: although, to him, it must have been a foregone conclusion that in doing so he exposed himself to sharper criticism than when submitting the body *in toto*. He has shown how the summing up was arrived at. Others have defined the methods they would employ, and what is the result of this dual arithmetic? Practically, the difference consists in that obtaining betwixt six and half a dozen. From the very nature of this, or any subject so elastic as these we have to deal with, considerable margin must be allowed. It is impossible to arrive at that accurate computation obtainable from mathematical data. In our subjects natural forces are ever present with their tendency to upset man's calculations. Such being the case we have no basis so firmly fixed but what is capable of being swayed by individual opinion. That we want the truth goes without saying. Failing that we must fain be content with the nearest possible approach to it.

All will allow the educational value of an analysis. It is its birth-right. It may also be conceded that criticism, conducted on the lines that this has been, is only secondary to it in value and importance. The disputatious points which have arisen appear to have sprung more from the method of compilation than from the results obtained. It is obvious that these gentlemen who have analysed the analysis are, by reason of their ability to do so, so happily situated as to least require the knowledge it is intended to convey. Yet they will not, I am sure, hastily overlook the fact, that behind them is the great mass of Rose lovers also seeking the truth. That these were catered for by Mr. Mawley in preparing his analysis appears to contain the gist of the whole question. Strong meat is doubtless suitable for giants, yet I think that "E. M." taking a comprehensive view, *pro bono publico*, endeavoured to present his dish in that form best suited to the digestive powers of men of less calibre, though as keenly interested.

"W. R. Raillem's" happily expressed metaphor (page 536) in the

"cup that cheers" is to the point from that point of view. Sugar at discretion for those who are discreet. These are experts able by force of superior knowledge to clothe the naked truth in rational dress. Yet not so with all. Younger people cannot claim the prerogative of their elders. Hence Mr. Mawley in sugaring for them has sacrificed the cultivated tastes of the few to the requirements of the many.—E. K.

DESMODIUM PENDULIFLORUM.

A PLANT far too seldom seen in English gardens is that depicted by the illustration (fig. 4). It forms in soils suited to its requirements, and these when in full flower have a singularly graceful appearance.



FIG. 4.—DESMODIUM PENDULIFLORUM.

The drooping character of the shoots is shown in the woodcut, and a large specimen laden with its bright purplish crimson flowers has a charming effect.

FAILURES IN FRUIT GROWING.

VERY many years ago I had the pleasure of meeting Mr. Mechi of Tiptree Farm celebrity. As is well known he tried various experiments in farming, some turned out well and were of advantage to the farming public by way of putting fact over theory, others were failures. Talking with Mr. Mechi one day as to what people had to say about or of him he said, "Yes, I know I have made mistakes like many others in what I have tried to do, but I have laid it all before the agricultural world. What was theory I made practice. It turned out wrong, I lost by it, but the people were warned and thus profited by my loss. They ought rather to thank me than jeer at me, as some have, because I have tried to show what will pay and what will not."

I thought there was much truth in this, and I think so now. If a man tries methods of production under certain conditions, and he finds they fail and he loses, that man does a lasting good to the community

if he gives his full experience. He is not to be jeered at nor flouted, as Mr. Mechi wisely observed, if he makes his failures known as well as his successes. Both benefit the public by being known. And this is so in Mr. R. D. Blackmore's case. He tells us of his failures in fruit-growing, and what the loss has been to him, and yet for this, one writer with an obliquity of mental vision that I am unable to understand, says, "It seems to me that the advice of Mr. Blackmore is not only mistaken but unpatriotic." Where is the mistake? He has grown fruit on his own land for forty years for market purposes. He says, "I began with the idea of living on the proceeds." In this he was disappointed—grievously disappointed. Instead of gain he has lost—lost thousands of pounds in the forty years. Then his "candid friends" tell him that he knows nothing about it. Well, I know Mr. R. D. Blackmore, and if after forty years' practice he knows nothing about it, all I can say is, that close observation, long and careful treatment of his trees, and the bringing to bear on the question a powerful and clear intellect ought to have made him an adept in these long years of thought and toil, and I may add with the love of fruit-growing.

Next I will take the assertion of "Spes in Futuro" that he is "unpatriotic." It is a well-known fact that no two people see alike, nor think alike, nor act alike; therefore I may be pardoned if I side with my dear good friend Mr. R. D. Blackmore, and in so doing I say this, I think his action was very patriotic. He has toiled in the heat of the day, and he knows the cost. He tells the people "This is what I have done, and in doing this, this is what I have lost. I tell you not because I am benefited in the telling, but that you, knowing what I have done, may not go into the matter blindly as I did, but with your eyes open. I expose my affairs to you for your good, not mine. I have no interest in telling the nation how and what I have lost, but you have in knowing, because you can profit by learning where I failed." Surely there is nothing but patriotism in this. I think so, and I honour my friend for it.

There was no need for him to tell of his losses, but for the public's good he has done it. He has done it bravely and well. Jeer at him if you will, any of you, all of you interested or otherwise; gird at him, read his truly pathetic letter where he says, "Well, gird away." He is convinced, he is honest in his convictions, and his truthful honesty of character, his deep sincerity, his manly upright nature would not let him withhold his practical knowledge from those he loves so well. I mean the English people. Sneer at him you little ones because you do not understand the magnitude of the deed, but honour him for it you greater minds. Honour to the man that outspeaks the truth as he knows it, sees and feels it. Such a man is, in my belief, Mr. R. D. Blackmore.—HARRISON WEIR, *Iddlesleigh*.

JOTTINGS ON APHIDES.

I HAVE read "Entomologist's" article on aphides on page 560 (last vol.) with much interest. With many of the facts stated I am well acquainted from researches. I am not quite certain as to the hybernating of the viviparous Plum aphid (*A. pruni*). I have found them in mild winters in January on the blossom buds taking nourishment from the base or neck, and supposed they must have climbed to that position from underneath the trees in grass orchards.

The common Primrose is a favourite winter hybernating situation for one species of aphid of a pale green colour; by taking up a few roots from woods at this season of the year the insects will be found on the under side of the foliage. Whether these are the forerunners of the great army of Plum and Hop aphides I am unable to say, not having minutely compared them.

I find the common brown scale or coccus very prevalent on Red Currant bushes at Kenilworth, some branches almost coated over, but the male referred to by "Entomologist" I am unacquainted with, and would like to learn more about it. The Black Currant mite and American blight, or woolly aphid, are also very destructive in certain districts visited by me in Warwickshire, and also the nut phytoptus on Filberts. Many trees I find ruined for the present until fresh growth is produced by pruning off the infested parts and burning them.

Some years ago "Entomologist" gave us some interesting information on silkworms and moths. Would he be kind enough to say where eggs can be obtained, and whether it is probable that they would become valuable if exported and reared at Chicago, U.S.A.?—JAS. HAM.

POINSETTIAS AT LEIGHTON.

MUCH the best display of these popular plants I have seen for some time are under the charge of Mr. P. Mann, gardener to W. H. Laverton, Esq., late High Sheriff of the county of Wilts. What winter-flowering plant is there, apart from the Chrysanthemum, that possess so many claims for decorative work, dinner-table, ball-room, or general use? In December even Chrysanthemums cannot vie with them not approaching the brilliance of the Poinsettia. This is more particularly emphasised when the cultivation of the plant is above the ordinary standard of excellence as in the case under notice.

The vigorous and healthy condition of the plants is remarkable, some being nearly 6 feet in height, and I think the average of all would be 5 feet. No larger than 7-inch pots are used, and among the collection I did not observe more than two or three old plants, the others being all early summer-struck cuttings. The girth of the stem of the strongest plant was 3 inches near the pot, and the finest bract measured 20 inches in

diameter. Whether it is a superior form of the type, or the outcome of good culture, I do not know; but there appeared a greater freedom in the character than is usually seen. There was not the compactness of the early form, nor the irregular habit of the latest one, that has such a distinctly bright colour. The colour, form, and time of flowering seemed to be altogether intermediate, and whether it is accounted for in the distinctness of the variety, or superior cultivation, there is certainly a claim for the highest commendation in the general excellence of the plants as I saw them.

Mr. Mann pins his faith apparently on the thorough ripening of the stock plants after they have ceased flowering, for they are rested on a shelf in an intermediate house, open to all the sunlight available, and this must be done without any extreme in the matter of root treatment and moisture. From well ripened wood comes sturdy cuttings, and these kept well up to the glass until they have gained the desired length are rooted in 2-inch pots, filled with a mixture of loam, leaf mould, and sand. Peat in small proportion, too, is used in the final potting, as are also a few crushed bones. Whether chemical manures of any kind are requisitioned I did not learn, but I was told that natural liquid manures were very sparingly given. Poinsettias are very sensitive to extremes of root or atmospheric treatment, as everyone knows who has to grow them; and the general condition of the Leighton plants testify in a marked manner to the care they had bestowed on them throughout the season. Their summer quarters after they are rooted is in cool pits, which are ventilated in accordance with the state of the weather, and in the autumn a small structure is almost exclusively devoted to them until their floral heads are developed, when they find employment in the conservatory and house.—W. S.

LIME.

I AM much obliged to "W. D., *Turnford*," for his valuable information (page 586, last issue), but hardly think he has fully explained my men's rooted antipathy to lime, for the simple reason that I never, of course, expected them to apply so powerful a chemical with their hands a bit more than any other manure. If, however, lime "causes soreness and cracking of the skin," I suppose moving it at all, especially if there be any wind, produces the deleterious effects "W. D." describes. I would therefore ask if it could not be slaked in one large heap on arrival from the kiln, instead of on the land in small heaps? But then, is slaked lime as effective as quicklime? Indeed, is it of any greater power or value than chalk.

"W. D." apparently propounds a new doctrine—viz., that lime is *per se* a soil fertiliser. Hitherto those advocating its use, whether in print or elsewhere, have confined themselves to recommending caustic lime as an insect destroyer. "W. D." does not appear to consider it so. My query was whether, if applied in sufficient quantity to kill wireworm, slugs, chrysalids, and other injurious denizens of the soil, it would not also destroy those microscopic forms of insect life which it is every gardener's endeavour to preserve and protect from injury. Otherwise, how is it one so often hears the remark that lime "burns the soil?" Gas lime now seems difficult to procure, owing to new processes having displaced its use in gas-making.—INQUIRER.

WILL you please correct the mistake made in the article—viz., "Lime" (page 586, line 22). It should read "Lime acts on soils in various other ways, for it is in itself a direct plant food, large quantities being taken up by growing crops as a nitrate of lime, it decomposes the organic matter present in soils, &c." The comma following the word crops should be placed after the word lime.—W. D., *Turnford*.

THE ORIGIN AND HISTORY OF SAXIFRAGA WALLACEI.

AS I am aware that the Botanical Society of Edinburgh does not confine its attention to matters of purely scientific botany, but takes a great interest in everything relating to horticulture also, I need scarcely apologise for bringing under your notice the subject of the origin and history of a now well-known plant, namely, *Saxifraga Wallacei*. I am the more anxious to place this subject before you, seeing that doubts still exist in the minds of many both as to the parentage of the plant and its raiser; and being acquainted with its history from the beginning, I am able to speak with some degree of confidence on the subject. In 1873 Messrs. Jas. Backhouse & Son of York sent out two new *Saxifragas*—*S. Maweana** and *S. Wilkommiana*. These were described by them as "two new species of the *S. palmata* section, with showy tufts of large pure white flowers, on stems 6 to 10 inches high." They added that, though nearly allied to each other, they are quite distinct, and might be regarded as two of the finest of the group. The first of these, *S. Maweana*, has now practically gone out of cultivation; but the second, *S. Wilkommiana*, is still grown.

Some two years after they were sent out, the late George Wallace, of the Dean Cemetery, Edinburgh, succeeded in raising from them a *Saxifraga* now usually known in plant catalogues as *S. Wallacei* of gardens. This plant has become very widely known, and it is,

* *S. Maweana*, *Baker*, figured in the "Botanical Magazine," t. 6384, was discovered by Mr. P. B. Webb, of Paris in 1827, "in its only known habitat, rocks of the Beni Hosmar range of mountains opposite Tetuan," in Morocco, "at about 2000 feet elevation." He regarded it as a form of *S. globulifera*. It was not recognised to be a new species until Mr. Maw gathered it in 1869, and it was introduced into cultivation by him.

perhaps, one of the best of its kind, whether for bedding purposes or as a pot plant. It has some qualities which mark it as an improvement on both parents, since it lasts longer in bloom than *S. Mawana*, and is of much superior habit to *S. Wilkommiana*, while it possesses a sweet scent but faintly present in either parent. Messrs. Dicksons & Co. procured the original plant from the raiser, and at once proceeded to increase it, preparatory to sending it out. As many as 10,000 pots of it have been in stock in Messrs. Dicksons' Nurseries at one time, for, although the plant very rarely seeds, it is easily grown from cuttings. It was distributed all over Britain and throughout the Continent of Europe, as well as in America.

As already stated, doubts have been thrown on its origin and history, and it is chiefly to set these doubts at rest, and to give honour to whom honour is due in the raising of it, that I have ventured to bring this subject before the members of the Botanical Society. I trust the plant will long keep alive the memory of its raiser—one who, though but a humble horticulturist, was, throughout a long life, a keen and enthusiastic lover of plants.—J. GRIEVE.—(*Transactions of the Botanical Society of Edinburgh*.)

OX-EYE DAISIES.

No doubt for cutting purposes flowers of these 5 inches across do seem too large. One of the faults of *C. latifolium* is its stiffness, and the lacinated forms of *C. maximum* far surpass it in beauty. I believe the great merit of the new variety of *latifolium* lies in its uses for garden effect. Flowers of 5 inches across are not inordinately large on a plant 10 feet high, a height which this large form will attain in good soils. I am told that *filiforme* is the proper spelling of this name and not *filiformis*.

"A. D." (page 539) is quite right in his wishes for the use of common names. But for the confusion which would arise with the popular *Chrysanthemum sinense* we might cut the Gordian knot by saying *C. filiforme*, and so on. But then we have *Elaine* and *Duchess of Abercorn* to deal with, and the confusion with those of the other species would be certain to come in. I fear we shall thus require to keep to *C. maximum filiforme*, *C. m. Elaine*, *C. m. laciniatum*, and *C. m. Duchess of Abercorn*. For garden purposes the use of the "m" would suit well enough. I understand the Rev. C. Wolley Dod's large variety was named *C. latifolium* "A1." Possibly this was only a provisional name, but I do not know that any other has been given by its raiser. I should much like to see the increase of varieties with lighter and more elegantly formed flowers. *C. leucanthemum* (semi-duplex) is a distinct variety, which it is to be hoped may lead to others of a similar but better form.—S. ARNOTT.

OVERTOWN.

THIS fine house and gardens, the residence of Lord Overtown, is situated on the south-west corner of the Kilpatrick Hills, about 600 feet above the sea level; and, as seen from the town of Dumharton, looks beautifully sheltered amongst the trees and the high hill at the back. After walking about two miles from the above town we find ourselves at the entrance of the new drive, which is yet in an unfinished state. Nothing is being spared to make this new approach substantial in character. It is $1\frac{1}{2}$ mile in length, and the contractor has had many difficulties to overcome. The ground through which the drive passes is intersected by a deep glen in two places, one part being filled up to the depth of at least 100 feet, and the other is to be spanned by a substantial bridge in keeping with the architecture of the mansion; and at one corner of this bridge a large rockery is in course of erection. As we stand on the terrace in front of the house we have one of the finest of the many lovely views to be seen from the Kilpatrick Range, Dumharton. Its majestic rock and the River Clyde, with its far reaches on either side, make this view sublimely grand.

The real object of our visit was, however, to see two different classes of plants—viz., *Chrysanthemums* and *Calanthes*—through the kind invitation of Mr. Forbes, who has had charge of these gardens for the last twenty-seven years; and I can confidently say a finer group of *Chrysanthemums* and a finer collection of *Calanthes* have rarely been witnessed. As we suddenly came in front of the hexagon-shaped conservatory, and beheld the *Chrysanthemums*, we cried, "That's grand." The plants were arranged in a group on the floor in the centre of the house, and were clothed with foliage down to the pots. The plants in front were about $2\frac{1}{2}$ feet high, and gradually rose to the height of 6 feet at the back, and so disposed that each bloom showed itself to the fullest advantage. These were large, and scarcely a had petal was to be seen. This was remarkable considering the lateness of the season (November 30th). Many of the best varieties of the Japanese, incurved, and reflexed families were represented. Mr. Forbes stated that most of the plants were cut back during the month of May; also that this was the second lot of plants so grouped, the earlier being considerably dwarfer.

We passed on to see the *Calanthes*. These occupied the whole side of a span-roof house 24 feet long. There were five rows of plants, principally in 7 and 8-inch pots, and what a sight! every pot just coming to its best. Three varieties are grown—namely, *C. Veitchi*, *C. vestita rosea*, and *C. lutea*. The majority of the spikes were 3 feet in length, and the colours very bright. *Veitchi* appeared to be of a deeper and better colour than is generally met with; this probably owing to good

culture and position. On the other side of the house the stage was filled with a general collection of Orchids, looking the picture of health, several in flower and others throwing up strong spikes.

There was much more to see, all denoting the best of management, particularly the large fernery, with the water rippling over the pebbles and the fish darting about. *Dicksonias*, *Calatheas*, *Todeas*, and other plants also looked quite happy and at home. We were sorry when the shades of evening stole upon us. But should any persons interested in horticulture or bee culture be in the vicinity I am sure Mr. Forbes will make them welcome, and show them the work that he and his assistants are so ably carrying on.—W. RUSHTON, *Coehno*.



FRUIT FORCING.

Vines.—*Early Forced in Pots.*—In order to secure well-set bunches the temperature should be somewhat brisk during the flowering stage, 70° to 75° by day and 65° to 70° at night being maintained, and an advance of 10° to 15° allowed from sun heat, admitting air moderately, always without inducing an inrush of cold air, which stunts the growths, crippling the foliage, and sometimes producing rust on the berries. As soon as the fruit is set the Vines should be well supplied with liquid manure, and have surface dressings of rich compost, maintaining a genial atmosphere by damping the paths two or three times a day, and occasionally with liquid manure, keeping the evaporation troughs regularly charged. Let the berries be thinned as soon as they are fairly set, removing the smaller, but remember they do not swell so large at the early part of the season as later, or as those of planted-out Vines.

Early Forced Planted-out Vines.—Great care is necessary to avoid chills, such as those resulting from injudicious ventilation, or admitting air too freely after a dull and cold period. In bright weather a moderate amount of ventilation will suffice to insure a change of air, which should be effected without lowering the temperature. With the foliage increasing root action will be excited, and should be encouraged by supplying water or liquid manure in a tepid state. Disbud, and tie the shoots down before they touch the glass, not being in too great a hurry in stopping nor restricting to a certain number of joints beyond the bunch, but extend the growths so as to insure well-developed foliage without overcrowding. Remove superfluous bunches as soon as choice can be made of the best, avoiding overcropping. Keep the house at 70° to 75° as the flowers open, and maintain a rather drier condition of the atmosphere.

Houses to Afford Ripe Grapes in June.—The Vines that are to supply these should be started at once, the outside border being protected with sufficient leaves, fern or litter to exclude frost. The inside border must be watered sufficiently to be evenly moistened to the drainage. Damp the house and Vines two or three times a day when the weather is bright, but in dull weather once or at most twice a day will be ample. The temperature should be 50° to 55° by artificial means, and 65° from sun heat.

Succession Houses.—Midseason Vines ought always to be pruned, and the houses thoroughly cleansed by the new year, and where late Grapes have been cut the Vines should be pruned with as little delay as possible. Cut to a plump bud as near the main stem as possible. There may be two eyes or more, which will cause the spurs in course of time to become long, but it is easy to train up young canes for displacing any rods that have the spurs too long. Rub off loose bark, for it does nothing but harbour insects, and wash the Vines with soft soap and water, not using a stronger solution than 4 ozs. to a gallon of water. If the Vines have been infested with mildew dress them with flowers of sulphur, formed into a creamy consistency with skim milk, and apply with a brush; or if the Grapes were attacked by "spot" use a solution of sulphate of iron, 1 lb. to a gallon of water. Remove the surface soil or mulching, and supply fresh material. Keep the house cool, but if utilised for plants the temperature, artificially, must not exceed 45° ; indeed, plants that require safety from frost only should be placed in vineries when the Vines are at rest.

Late Houses.—Vineries in which Grapes are hanging should have a dry atmosphere and a mean temperature of 45° . Examine every bunch frequently, and remove all decayed berries. Ventilate the house on fine dry mornings, and keep it closed when the weather is damp. It is a better plan, however, to cut the Grapes, inserting the ends of the shoots in bottles of water, secured in an inclined position, so as to admit of the fruit hanging clear of the bottles. Any dry room will be a suitable place where an equable temperature of 40° to 45° is maintained. This will admit of the Vines being pruned and the house cleaned.

Cherry House.—This having been closed last month, as advised, and frost excluded from the house, gentle excitement will have taken place, and fire heat may now be applied so as to maintain a temperature by artificial means of not more than 40° at night and 45° in the day-time, advancing 10° from sun heat, ventilating at 50° , and closing at

that point. Ventilate very freely in mild weather, and avoid hasty treatment in the early stages of growth. Make sure that no deficiency of moisture exists in the soil, and see that trees in pots are not neglected for water. Sprinkle the trees and house occasionally in the morning and afternoon in bright weather, but avoid keeping the trees dripping with moisture, and ventilate a little, constantly, as a close atmosphere weakens the blossoms even when they are enveloped in the scales of the buds. Cherries can hardly be brought on too slowly in the early stages of forcing. Trees started now and having been forced before will give ripe Cherries at the end of April or early in May, but those forced for the first time will not ripen their crops so early by a fortnight or three weeks. Early Rivers, Black Tartarian, and Governor Wood are excellent varieties.

Strawberries in Pots.—The plants started in December should be closely scrutinised for aphides, and if there be the least trace extirpate the pests by repeated fumigation. A keen eye should also be kept on the growths for the first speck of mildew, when promptly apply flowers of sulphur thereto, and brush the hot-water pipes over lightly with a cream formed of it and skim milk. The fumes from sulphur are potent in the destruction of mildew, and the plants and fruit are not disfigured. A temperature of 50° to 55° at night, and 60° to 65° by day, will bring the plants forward as quickly as is safe, allowing an advance of 10° to 15° from sun heat. Lose no opportunity of admitting air, as the trusses are the boldest and the flowers the strongest when the foliage has abundance of light and air. A close atmosphere induces soft tissues, weakly organs of fructification, and deformed, ill-shapen fruit.

Place a number of plants on shelves in Peach houses or vineries started about this time. Rectify the drainage of the pots, remove moss or other matter from the surface of the soil, and wash the pots clean. Surface dress with an approved fertiliser mixed with a little loam, or use three parts superphosphate, two parts powdered saltpetre, and one part ground gypsum, mixed. Apply about a teaspoonful to each pot, after top-dressing with rich soil, and wash in. Noble and Auguste Nicaise are excellent for introducing now to fruit in April, but both President and Sir Joseph Paxton excel them in quality. To maintain a succession of plants La Grosse Sucrée and Vicomtesse Hericart de Thury must be introduced at the same time.

Melons.—Seeds should be sown at once for the first crop. They are best placed singly in 3-inch pots about two-thirds filled with soil, covering about half an inch, plunging the pots in a bottom heat of 80°, placing a square of glass on each pot to bring up the seeds quickly, and removing it directly the cotyledons lift the soil. Good fibrous loam and leaf soil in equal parts gently pressed down form a suitable compost for the young rootlets, the pots being efficiently but not excessively drained. Keep the plants near the glass, not allowing them to become drawn. Ripe fruit from a sowing made at this time may be expected early in May or sooner if the weather be unusually favourable. Scarlet Gem (scarlet-flesh), and Pineapple (green-flesh), are excellent in quality, but the fruits are small. Blenheim Orange, Sion House, Eastnor Castle, and Longleat Perfection are also excellent. There is no end of varieties, every grower having some special favourite.

Cucumbers.—To secure plants for growing in frames or pits heated by fermenting materials seeds should be sown now for February plantings, the materials for which ought now to be in process of sweetening for making up the beds. Where no convenience exists for raising plants a bed of leaves and stale manure should be made up forthwith, the seed to be sown as soon as the bed affords a bottom heat of 90° and top heat of 70° to 75°. A sowing made at this time will afford fruit in April onwards, the plants being put in the fruiting beds early in February and well attended to with linings and coverings.

Cucumbers in Houses.—Seed sown now, as advised for Melons, will afford plants fit to place in their fruiting quarters in about a month, and such plants will afford fruits from the beginning of April or earlier, and maintain a liberal supply during the late spring and early summer months.

Young plants just coming into bearing must be cautiously cropped, assisting them to swell their first fruits by removing staminate blossoms and superfluous fruits. Trim plants in bearing twice a week, removing all weakly and exhausted growths, retaining as many of the young growths as can have space for expanding their foliage, but overcrowding tends to certain disaster. Stop the shoots one or two joints beyond the fruit, but young plants should be allowed more freedom, always avoiding overcrowding. Maintain the night temperature at 65° to 70°, 70° to 75° by day, with a rise of 10° or more from sun heat, admitting a little air at 80° if the external air be warm and soft, but if cold and sharp it is better to allow the temperature to advance a little higher than admit cold air to reduce it, even when the sun is powerful. If canker appear rub quicklime into the affected parts and repeat as necessary. A little sulphur, brought to the consistency of cream with skim milk, and brushed on the hot-water pipes will keep down red spider, white fly, and mildew. It must not be overdone, just a light coating being sufficient. Maintain a genial moisture by damping the floor in the morning and afternoon. Supply liquid manure about once a week or at every alternate watering, always slightly warmer than the bed.

Tomatoes.—Where plants have to be raised from seed to produce the earliest supplies of fruit, the seed should be sown now rather thinly in light soil, and placed in a house where there is a temperature of 60° to 65°, with an advance of 10° to 15° from sun heat. The seed

pot should be placed near the glass, so that the seedlings may come up strong and be kept sturdy. When large enough to handle place singly in 3-inch pots, and from these transfer to 5-inch, when they become well rooted, keeping them well down in the pots. From these they can be transferred to the bed, which should insure a depth of about 15 inches, and under that rubble for drainage. A ridge about a foot wide at the top, and the whole length of the house, will be sufficient for planting in, the plants being set about 18 inches apart, and trained on the single cordon system to wires about 1 foot from the glass. Fruit will show right along from the first truss, therefore do not stop the lead until the last truss is produced according to the extent of space, and keep off all side shoots. Good loam with a fifth of well-decayed manure will grow them well, but some lime rubble, a little wood ashes and charcoal are advantageous. A 2 feet width of border is ample, the plants being earthed as the roots protrude, making the soil firm. Surface dressings and liquid manure can be given when the crops are swelling.

Growing in Pots.—Instead of planting out, the Tomatoes can be placed in 10 or 12-inch pots from the 5-inch, placing low enough for top-dressing with fresh soil. The plants will come into bearing quickly, and can be fed to any extent after the first trusses are secured.

Cutting Plants.—The cuttings for supplying the plants are inserted in September, and kept near the glass in not larger than 5-inch pots, in a temperature of 55° to 60° with a rise from sun heat. If the plants get too tall a little damp moss placed around the stem just below the leaves will soon be filled with roots, below which the stem may be severed and the dwarfed plants placed in 5-inch pots. In a temperature of 60° to 65° with 10° to 15° advance from sun heat, they are soon ready to transfer to the final pots, with fruit showing, so that they afford ripe fruit several weeks earlier than those raised from seed. A night temperature of 55° to 60°, 60° to 65° by day, and 70° to 75° from sun heat, and ventilation from 65° will keep the plants sturdy and progressive. When in flower ventilate rather freely, and rap the base of the truss to distribute the pollen. About one-third of the leaf may be pinched off to afford light, practising it early, and with liberal supplies of liquid manure the fruit will attain a good size.

THE KITCHEN GARDEN.

Mushrooms.—It is at midwinter when Mushrooms are in the greatest request in many private places. As yet beds in unheated structures as well as those outside have not ceased to be productive; but a period of intense cold would quickly stop further growth for a time, and it is then when a little fire heat does good service. Too often it is turned on more freely than desirable. From 50° to 55° answers well, and any considerable increase on those figures is detrimental to the quality and quantity of the Mushrooms produced. Where fire heat is employed the beds should be frequently examined with a view to giving a thorough moistening with warm water directly they approach dryness. Once allowed to become very dry it is scarcely possible to remoisten the manure, and the Mushrooms will soon cease to appear accordingly. On the other hand saturation must be avoided, as this destroys the spawn.

Open-air Mushroom Beds.—These ought to be uncovered as little as possible during cold weather. If they are producing mark where last uncovered and gather from the next width, re-covering with litter as quickly as possible. Heavy rains have penetrated through quite heavy coverings of litter, and unless the latter is changed for drier material frosts will reach the interior of the beds; not that this will destroy the spawn, but it will stop productiveness for some time to come. Besides, unless the litter is changed the beds will become too cold and saturated for the spawn to survive.

Tomatoes.—The autumn and early winter has been favourable to the preservation and growth of late-raised plants. Instead of keeping these in a semi-starved state in small pots they ought now to be either given a shift into larger, or they may be placed direct where they are to fruit. The earliest crops can, as a rule, be had by pot culture, the exceptions being when ridges of soil can be placed on a staging along the front of a forcing house, training the plants up the roof in either case. Ten-inch pots are large enough for a single fruiting plant at this early date, and these should only be three parts filled with soil, this allowing good room for top-dressings later on. A rather rich compost should be used for potting. A mixture of two parts of roughly broken-up fibrous loam to one part of horse droppings with a sprinkling of fish-bone manure added is not too rich, but for ridges less manure is needed. The soil ought to be warmed and made firm about the roots. "Leggy" plants should not be buried deeply, the better plan being to lay them down, so as to bring the heads where they are wanted and cover the naked stems with soil. In the course of a few days the buried stems will emit roots freely, and be a source of strength rather than weakness. The temperature of the house may range from 55° to 60°, but avoid creating a moist atmosphere or disease will soon be observable.

Raising Tomato Plants.—If seed is sown now or early in January it ought to be possible to have ripe fruit from the plants in April or early in May. For these early crops the slightly corrugated varieties such as Frogmore Selected, Early Ruby, and Webb's Sensation are to be preferred, as these are the freest setters, and the two first named ripen well in advance of most other varieties. Challenger, Ham Green, and Duke of York are all suitable for affording a good succession of handsome fruit. Sow the seed thinly in 6-inch pots, using fine sandy soil, as the roots are least injured when shaken clear of this at potting

time. Give a gentle watering and plunge in brisk bottom heat. Soon after the seedlings appear transfer to shelves near the glass in a forcing house. When they have formed a pair of rough leaves, shake them out, and either place singly in $2\frac{1}{2}$ -inch pots or in pairs down the sides of larger pots. Plunge in a mild hotbed and afford top heat of 65° or thereabouts. Thus treated they will soon recover from the check given, and after a few days' existence nearer the glass they will be ready for a shift into larger pots or for their fruiting quarters.

Market Growers' Houses.—Too often these are crowded with a variety of pot plants, which greatly interfere with the more profitable occupation of growing early crops of Tomatoes. The borders ought now to be in the course of preparation for Tomato plants. If there is a good depth of workable soil underneath, some of this ought each season to be brought to and mixed with the surface soil in the process of bastard trenching—the shovellings of that portion loosened. Tomatoes are great impoverishers of the ground, and something ought to be done each season towards restoring the fertility taken out of it. Much solid manure, such as that obtained from farmyards and stables, is apt to promote rank and non-productive disease-inviting growth of the plants, but a light dressing forms a good adjunct to an application of chemical manures. It has been found that an early dressing of the latter applied just prior to planting gives better results than later applications. Tomato manure may consist of four parts superphosphate to two of muriate of potash, and one of nitrate of soda. These should be thoroughly well crushed and mixed, then forked into the surface at the rate of $4\frac{1}{2}$ ozs. to the square yard. Should the plants give signs of failing vigour before the end of the season apply nitrate of soda alone, at the rate of 1 oz. per yard. Where the soil is thin, and cannot therefore be improved by trenching, bring in a heavy dressing of fresh loam. After a few years the soil gets "Tomato sick," and if it cannot be completely or largely changed, then pot culture ought to be resorted to, in order to give the old soil a rest and a chance to recover. The woodwork and glass in the houses should have a thorough cleansing, and painting the houses every third or fourth year is desirable.

PLANT HOUSES.

Poinsettias.—If the heads are cut while the plants are in strong heat the foliage flags at once, and the bracts do not last very long, but if given a lower temperature and a little air they last well in a cut state. When gradually hardened these plants will retain their foliage in the conservatory, and last for a long time in good condition if kept rather dry than otherwise at their roots. If given too much water the roots fail, and the foliage turns yellow and quickly falls. Plants from which the bracts have been removed should not be placed direct from a warm house into a cold one, or they may go off. They should be gradually hardened and then kept dry.

Allamandas.—Roof plants that have practically done flowering may be well cut back, and all the foliage removed, so that as much light as possible can reach those plants that are grown beneath. Every ray of light possible is necessary for these plants at this period of the year. Allamandas should be kept dry after they are pruned; the abrupt cutting back and removal of foliage does not appear to be in the least injurious. Our plants flower most profusely under this system of treatment.

Bougainvilleas.—Plants which have been kept dry in cool houses and at their roots, and are shedding their foliage, may be well pruned back. All weak growths may be removed, and strong ones not needed for furnishing the plant cut back to one eye. Strong shoots needed for main branches should have all the unripened wood removed from them. Keep the plants dry at their roots until they are started into growth. At the same time do not allow the wood to shrivel from over-dryness.

Clerodendron Balfourianum.—The earliest of these having enjoyed a good rest may be started in the forcing house where the temperature ranges about 65° at night, if slight bottom heat can be given them all the better. These plants will do in the same pots for several years, provided they are top-dressed with rich material and liberally supplied with stimulants during the growing season. When repotted they need more care than either Allamandas or Bougainvilleas. They should be started into growth before repotting, and the old ball reduced by about one-third, taking care of all fibrous roots. Two-thirds fibrous loam, and one-third made up of leaf mould and coarse sand with the addition of a seventh of decayed manure, form a suitable compost. Very little water is needed previous to repotting, and very little beyond syringing afterwards, until the roots are active and the plants growing freely. Those which are going to rest or are resting must not be placed in a lower temperature than 55° or they may never start into growth.

Euphorbia jacquiniæflora.—Plants in flower should be hardened on the principle advised for Poinsettias, then they will stand without the least injury the temperature and conditions of the conservatory. On no account should they receive too much water while in this position. Few plants are more conspicuous in the conservatory, rising above others of a dwarf nature. The racemes of brilliant flowers are also effective for light arrangements on the dinner table. This plant is not grown in such numbers for furnishing purposes as it deserves.

Stephanotis floribunda.—After having been fully exposed to the light and kept moderately cool, the plants may be thinned out and all unripened wood removed. It is a mistake to leave them too crowded, or after they once commence growth they soon become a dense mass.

Under these conditions it is almost impossible to keep them free of mealy bug. Infested plants should be removed from the trellis and thoroughly cleansed, the trellis and woodwork of the house also painted with petroleum. Subsequently well syringe the plants with petroleum and water, 1 oz. of the former to each gallon of the latter, several times before growth commences. Keep the temperature about 50° and the soil dry enough to induce complete rest. This combined with thoroughly matured wood will result in a profusion of flowers another season.

Plumbago rosea.—As the plants go out of flower and the stock is ample, half may be thrown away, the remainder being cut hard back for yielding cuttings for next year's stock of plants. If only partially shortened the first growths produced will terminate with flowers, but when severely pruned vigorous growths are certain to follow. The plants are liable to be attacked by thrips, and should be well washed with a solution of tobacco water or other insecticide before they are placed in the position in which they are to stand to yield cuttings.

Adiantum cuneatum.—The fronds of this Fern are always in demand, and the supply even from cool houses will gradually begin to diminish after this date. It is a good plan to keep a number in a cool airy structure, and if the fronds are used from these the plants are ready for starting again into growth by the close of the year. Plants so treated and cut clean over are showing signs of growth already. If these are placed in a temperature of 60° they will grow rapidly, and in a very short time produce useful fronds for cutting. The drying process to which these plants are sometimes subjected is a mistake. Do not pot the plants when fronds are needed as early as possible, but when they commence growing give them soot water in a clear state, or a little artificial manure. Nothing is better than the former, while the latter acts beneficially when applied in small quantities.

THE BEE-KEEPER.

APIARIAN NOTES.

A RETROSPECT.

By the time this appears in print the eventful year of 1894 will have passed away and 1895 will hold the sway. 1894 saw the last of many cherished friends and old bee-keepers, while not a few youthful ones have joined the ranks.

The low temperature of the summer, with the mild autumn, greatly in contrast to the late winter and early spring months, has afforded many lessons to horticulturists as well as to bee-keepers, being disastrous alike to plants, flowers, and bees. The latter with us had to be fed up to the last week in July, and at the Heather got little or no honey till the end of August and beginning of September. With me it has been a record year, as I have had the most equal and heaviest hives I ever possessed, due entirely to having them strong at the right time; and had I kept my hives at the Heather till the middle of October they would, I believe, have been heavier than any hives ever recorded in this country.

Hardy spring flowers had scarcely expanded their blossoms ere a storm destroyed them, and this continued till June, the only exception being the soft, silky *Sisyrinchiums*, which came into bloom at a time for them to show their beauty for many days. Daffodils, Snowdrops, and others had their foliage so destroyed that there were in consequence many blanks where but for these causes we would have had numbers of blooms. Plants such as *Hepaticas* only began to grow in April, when their succulent leaves became an easy prey to the myriads of aphides which infested nearly every plant. So that I have to enumerate them amongst my departed friends.

A severe gale on the evening of the 21st and the morning of the 22nd December wrought much havoc. Christmas came as an average summer day, smiling with beauty, as if laughing to scorn the destructiveness of the late gales. Not only was it cheering by the bright sunshine, but by its genial warmth of 59° . To the bees the day was one of extra merriment, for not only did they avail themselves of the opportunity to sport in the sunshine, but searched the various flowers for pollen.

The mildness of the season has caused bees to breed a little earlier than they usually do. Young bees are now appearing in some hives, while in others in a normal state the drones have been permitted to live up till date, which in both instances tends to shorten stores, a state of affairs that bee-keepers must bear in mind, as success depends very much on preventing any stoppage of breeding when once it has naturally begun.—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES.

ALL hives should now be examined for any leakage that may have taken place, and steps at once be taken to make all rain and

damp proof, as after the late boisterous weather the roofs that have not been securely fastened down have in many instances been lifted off and carried some distance, and the covering blown in all directions. All damp covers should be taken off and dried before being replaced on the hives, as no stock can remain healthy if condensed moisture is allowed to remain in the hive.

Stocks should now be examined to see that they are not short of stores; this is done by rolling the quilt off two or three of the outside frames; look down between the frames, and if there are a fair amount of sealed stores they are safe. The covering can be replaced, and not a bee will be disturbed. No smoke will be needed, and a few minutes will suffice to examine several colonies. Make a note of any that appear to be short of stores, as after the open weather we have had bees have consumed more than is usually the case when the weather is severe. Bees have been daily on the wing, and such cleansing flights is of great advantage, and tend to the general health of the stocks.

The weather having kept mild so long, no bees have been lost, as is often the case when snow has fallen and lain on the ground for several days, and the sun has shone brightly for an hour or two in the middle of the day. The bees have been tempted to leave their hive, falling on the snow never to rise again, becoming numbed in a very short time. Strong colonies are sometimes very much reduced from this cause. When there is danger of this happening it is well to close the entrance for an hour or two during the middle of the day, and no harm will happen to them; but it is better if they have ventilating floor boards.

I do not find it advisable to feed with syrup at this time of the year, as the bees will die of starvation, although the syrup may be close to the brood nest. It is better to feed with candy for the next three months. This is made by using one pint of water to 5 lbs. of granulated sugar. Put it in a saucepan and set over a slow fire, stir carefully and boil for a few minutes. To know when sufficiently boiled, take a little out with a spoon and drop it into cold water. If it remain liquid boil a little longer, as when ready it will set in cold water. It should then be taken off the fire and the saucepan stood in a vessel of cold water. Stir incessantly until the whole gets into a thick pasty state, then pour off into saucers, or any shallow dish, in which a piece of thin paper has been previously placed. When quite cold turn out of the moulds, place as required directly over the brood nest under the quilt of any of the stocks that require feeding, covering the whole up warm. These may be replaced as occasion may require, and the stocks will be perfectly safe. It is better to err on the safe side by giving plenty of stores.—AN ENGLISH BEE-KEEPER.

PRESENTATION TO "A LANARKSHIRE BEE-KEEPER."—On the 21st ult. the Blantyre Bee Club and its guests, representing Larkhall, Cambuslang, Hamilton, and Renfrewshire, sat down to an exceedingly well-purveyed dinner in Mr. Struther's, High Blantyre. Mr. Pearson, of Rutherglen, presided in a most genial way, giving an excellent speech, full of sense and humour. Thereafter Mr. Wilson delivered a kindly address, detailing how much help they, the novices, had required, and what difficulties were met in bee culture, but how quickly these vanished whenever Mr. William Thomson was asked to assist them, so now he handed over a watch and chain to be a memento to him of their appreciation, and he trusted Mr. Thomson would be long spared to go out and in amongst them and enjoy the delights of bee-keeping, helping everybody, and writing instructions for many readers. Mr. Thomson replied, and said that though somewhat put out by the unexpected presentation, and though able to speak till morning on bees, he was unable to express his feelings at their kindness and the manner in which they had joined in this token of goodwill, and all from his own district. He then, amidst much cheering, proceeded to narrate his bee-life, how ere his seventh year he had been interested in bees—detailing with zest the methods in vogue now and then. He graphically sketched the old times with the present, showing how much bee-keepers were helped by parcel-post transmission of queen bees from all countries; while steamers and railroads made going to the Heather a simple task to-day.

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingham, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, London, W.

TRADE CATALOGUES RECEIVED.

Wm. Clibran & Son, Oldfield Nurseries, Altrincham.—*Catalogue of Vegetable and Flower Seeds.*

E. P. Dixon & Sons, Hull.—*Seed Catalogue.*

Hogg & Robertson, Dublin.—*Seed List for 1895.*

Chr. Lorenz, Erfurt.—*Illustrated Catalogue for Gardeners and Amateurs.*

H. & F. Sharpe, Wisbech.—*Wholesale Seed Catalogue.*

Stuart & Mein, Kelso, N.B.—*Amateur Gardening Guide.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Labels (B. S. B.).—Your letter has been forwarded, in accordance with your desire.

Examinations (A. E. O.).—If you will send your full address a letter will be sent to you. The address given is possibly not quite complete.

Oil Stove (The Boy).—Success with the stoves you name is very much a question of management—cleanliness of the wick, the best oil, and not overheating. We have known some persons succeed with them, but others fail. We should prefer a different mode of heating a house in which Orchids are intended to be grown.

Hyacinth Roots Decaying (C. O.).—We are unable to account for this misfortune except on the possibility of something deleterious in the soil, either when it was mixed or given in watering. We have no doubt, however, that one of the plants would have grown and flowered very well, as the roots were in much better condition than the other. This tends to suggest that there has been some mishap in watering. We should allow the soil to become drier than is usual, then give two or three good waterings with pure water in the hope of "washing" the soil and leaving it more healthy for the roots. We think you will not have a total failure.

Caustic Soda and Potash Solution for Washing Fruit Trees (J. E.).—Only one thing can be meant by caustic soda (NaHO), a white, opaque, brittle substance, with a fibrous texture. This you may obtain of most druggists, or they will procure it for you in various strengths, 98 per cent. being the strongest. Washing soda (Na CO₃ IOH₂O) is a different substance, and not suitable for the purpose. The caustic soda and potash solution must only be used at the strength named for Plum trees, for bush fruits have not nearly such thick rinds as the larger fruit trees, and it should be reduced to 8 gallons, or if the growths be soft to 10 gallons. The substances do not require boiling, but merely dissolving, the solution being applied by a spraying apparatus in mild weather, but when the bushes are dry, damping them thoroughly, but not excessively. It has been found essential where used.

Carbon Nibs from Electric Lights (Perth).—You will get nothing more, nor indeed so much, out of the small pieces of carbon than from charcoal, which is not a manure, but from its absorption of manurial matters is considered to benefit crops. Its chief value consists in its porosity, sweetening properties, and keeping the soil open. Its carbon is of no use to plants as food, for it is insoluble, practically indestructible, and supports only certain very low forms of vegetable life. Considering the hardness of the carbon points we should consider them of little gardening value.

Plum Trees not Setting Fruit (Yorkshire).—The trees have probably suffered from drought at the roots, a common occurrence with those against walls; the buds are thus neither well developed nor can the flowers attain a perfect condition. The rains, however, were abundant in the autumn and early winter, so that the trees can scarcely lack water now, except it be close to the wall, where it would certainly not do any harm to supply liquid manure copiously when the buds commence swelling. We would also advise thinning the blossom if very abundant, and cross-fertilisation of the flowers would be attended with great benefit; indeed, we have known cases in which it has been

occupation? Without hesitation do we answer Yes! and in doing so we give full recognition to the gravity of the situation; to the difficulties which have grown up—are still growing; to the radical change which is bound to come both in farm management and in the sale of farm produce.

There are two things especially on which safe farming in the present and future depends—*i.e.*, individual effort and general combination. With judicious change on the farm there must be co-operation of farmers. By all means let us have an equitable adjustment of railway rates and relief from the burden of taxation now on the land, but do not let us regard either form of relief as a primary remedy for depression. If we get either, or both, corn will still be cheap, foreign produce of all kinds will continue to pour in upon us. We hold that throughout the struggle with adversity to which so many worthy farmers have succumbed, the common mistake has been looking without rather than within for a remedy. Let us look the situation squarely in the face, endeavour to grasp its full significance, and then set ourselves to see what the remedy is and how to apply it.

To take Wheat, how can any farmer expect it to answer under ordinary conditions now? Recent computations show that at the present time there are two and one fifth million quarters of Wheat in the United States of America, and over seven million quarters of Wheat in the Argentine Confederation, from whence it is said that Wheat could be imported and sold at a profit in this country at 12s. a quarter. But, then, it is not a question of the Wheat produce of one or two countries. Take the market report of any week, or, to be more definite, of a fortnight ago, and we have 1,225,000 quarters from United States Pacific ports, 240,000 quarters from Russia, 232,000 quarters from United States Atlantic ports, 230,000 quarters from Australia and New Zealand, 190,000 quarters from the Argentine Confederation, 91,000 quarters from India, and 60,000 quarters from Chili. How, we ask, in the face of such facts, dare we venture to sow Wheat unless we have an exceptionally good market for Wheat straw?

Many a shrewd man is turning the low price of corn and feeding stuff generally to account for his stock in this way:—Very much of the land once devoted to Wheat is now in temporary pasture, only enough of it being ploughed for home requirements in the way of roots, Cabbage, Kale, green Maize, Oats, Rye, Vetches, and perhaps a few acres of Peas. Then by rearing only really well bred stock in which early maturity is a certainty, by the exercise of proper care in feeding and general management, and by the judicious purchase and use of a wholesome dietary of mixed food, the stock is sold at a profit. We have heard much talk about the low price of beef at the great Christmas Fair at Islington on December 17th, but having regard to the exceptional cheapness of food for fattening cattle we see no just cause of complaint. Compared with the great Christmas Fair of 1893 there was a falling off of a farthing a pound in the lowest quotation and 1d. a pound in the highest. Again we say, Rear only good stock, buy sound corn at the lowest wholesale rates, feed well, shelter well, keep on the calf flesh, for depend upon it there's money in it.

We have heard quite enough about cheap corn and bankruptcy; let us see if we cannot render 1895 remarkable for cheap corn and prosperity. There is quite enough foreign competition in our markets to keep down prices; be ours the endeavour to take full advantage of such prices for our cows, cattle, sheep, pigs, and poultry. Only all must be good; there must be no inferior animals of any sort upon the holding where safe farming is to prevail. It costs no more—nay, it does not cost so much to feed well bred stock as it does inferior animals. There is a sure market, too, for spring chickens, for winter eggs, for prime porkers, for first-class cheese and

butter. For the latter we must have co-operative factories; anything like the uniform quality of Danish butter cannot be had from the ordinary farm dairy. The fact that we pay something like £12,000,000 a year for imported butter ought to be an incentive to reform that is so possible and so certain in its results. We pay to Denmark alone about a third of that amount, with another million for bacon and £400,000 for eggs. Such a radical change as we aim at cannot be effected in a year, but much may be done. Where shall we begin?

WORK ON THE HOME FARM.

For farm work to go well and smoothly there must be some really skilful labourers, and in order to retain such men there must always be work for them. At midwinter there is some difficulty about this, and our old Suffolk friend who fills his barns with corn for the men to thresh with flails when they cannot work upon the land in winter, may be thought to be behind the times in this matter, but he assures us it cost no more than the threshing machine, and it enables him to keep his men upon the farm. We are entirely in sympathy with him in this matter, and we should be even if the outlay involved something beyond the cost of hiring and using the threshing machine. We have recently had a shelter hovel built over the horse gear of a tenant which he had in daily use for cutting chaff and roots and pumping water. In the provision of all reasonable shelter, of field gates, and of help with fencing, a landlord is wise to assist his tenants, also in the matter of draining. In connection with what we have said about the wisdom of allowing the men to thresh corn stored in barns with flails, we may mention the cost of threshing by steam, winnowing, measuring, and placing in sacks is 1s. 10d. per quarter, and men with flails ought to earn a fair wage at something like this price.

See now that all farm tools, implements and vehicles are examined and put into a thorough state of repair. Now is the time to have repairs of mowing and tedding machines done—not just before hay-making begins. A coat or two of paint on waggons and carts is a preservative and prevents decay. Keep also a sharp outlook upon gate fastenings and farm buildings, have little faults and blemishes seen to at once, make it part of good management to keep everything in repair, and have good order and neatness maintained everywhere, but especially at the homestead. Estate artificers cannot often be spared for the home farm, and it is well to have a handy man able to do trifling repairs, to tar iron fencing and woodwork, or to paint if need be.

EXPERIMENTS ON PERMANENT PASTURE.—An interesting report has just been issued giving the results of experiments on permanent pasture carried out by Mr. F. J. Lloyd, F.C.S., on behalf of the South-Eastern College, in connection with the Kent and Surrey County Councils. The object of the experiments was to discover what constituents the light soil of the farm was most deficient in, and what manures could with most advantage be applied to supply the deficiency. The report contains an exhaustive account of both experiments and results, and is well worth careful perusal by grass land farmers.

METEOROLOGICAL OBSERVATIONS.

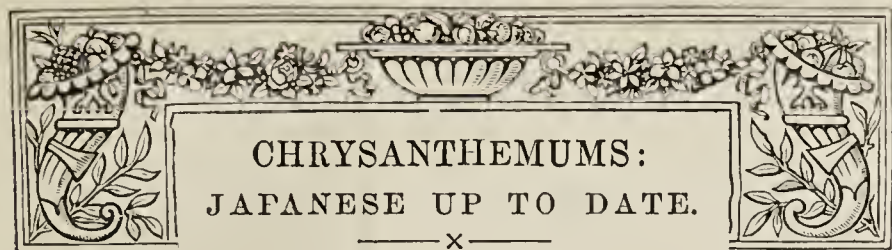
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1894. December.		Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.		Inchs
Sunday ..	23	30.237	36.4	35.7	N.W.	41.8	48.2	34.9	54.2	30.8	0.089
Monday ..	24	30.124	47.7	47.3	S.	41.9	49.7	35.9	53.8	32.2	0.026
Tuesday ..	25	30.472	47.3	46.1	N.	43.3	48.6	46.1	50.6	43.2	—
Wednesday	26	30.546	46.2	45.6	W.	43.8	47.8	45.0	49.7	42.8	0.048
Thursday ..	27	30.636	35.9	34.7	N.E.	43.8	44.2	34.2	61.4	29.4	—
Friday ..	28	30.529	33.3	32.2	W.	41.2	46.8	30.0	47.9	26.1	0.040
Saturday ..	29	29.411	38.2	35.2	W.	41.2	42.8	32.6	59.1	32.2	0.048
		30.279	40.7	39.5		42.4	46.9	37.0	53.8	33.8	0.251

REMARKS.

23rd.—Bright sunshine all morning; fair afternoon; milder in evening, with rain from about 8 P.M. to midnight.
 24th.—Dull all day, and generally drizzly.
 25th.—Mild and dull throughout.
 26th.—Overcast all day; showers in evening.
 27th.—Almost cloudless throughout.
 28th.—Slight fog early; frequent sunshine from 10.30 A.M. to noon; cloudy afternoon, with high wind; gale and slight rain at night.
 29th.—Showers early; bright sunshine from sunrise to noon, then rain squall and alternate cloud and sunshine after; showers in evening.
 Temperature still above the average, but rather cooler than the previous week.
 —G. J. SYMONS.



CHRYSANTHEMUMS:
JAPANESE UP TO DATE.

THE election which I had the pleasure to conduct last year was so much appreciated that, acting on the invitation of the Editor of the *Journal of Horticulture*, I have again secured the co-operation of the leading growers and exhibitors of Japanese Chrysanthemums to carry on the useful work. The yearly increase of varieties necessitated the extension of the number this year to thirty-six. When we consider that no less than 178 varieties were named for the thirty-six list, the extension appears justifiable, and is distinctly a proof of how wide personal taste travels. With a view of rendering the election thoroughly representative, the number of electors was increased to seventy, as against forty-two last year, and as will be seen when the individual returns are published, the opinion of cultivators, not only in England and Scotland, but in Wales and Ireland also, was invited, and they freely responded. From numerous letters received it would appear that growers greatly appreciate the knowledge gained as aiding them in the selection of varieties for the current year. The original date fixed for closing the election was December 15th, but an extension of one week was granted for the benefit of a few who, through pressure of home duties, were unable to respond earlier.

Complaint was made last year that those persons who simply grew Chrysanthemums for decoration were neglected. A selection of varieties for this purpose has therefore been added, and from the returns received should prove a success. The addition of new varieties in a list by themselves will afford instruction in the purchase of this section, and the fact of no less than 154 being named in the compilation of the twelve required proves how difficult it is for a person without experience to make a selection, especially when situated far away from a horticultural centre. To assist those last named the election was mainly instituted, and I am pleased to find that our efforts are appreciated, and to those who co-operated I tender my hearty thanks for their valued aid. Several electors suggest that next year the incurved section should be included, as the number of varieties has increased considerably during the last ten years.

Although there are seventy electors, only sixty-nine votes are recorded to any variety in the thirty-six list, which appears somewhat strange at the first glance. The explanation is, one elector confined his selections to twenty-four and twelve varieties.

A few remarks on the position attained by certain varieties may not be out of place. In the thirty-six list Vivian Morel, Charles Davis, and Mdlle. Thérèse Rey are equal in the number of votes gained. It would be difficult to imagine a better type of a Japanese Chrysanthemum than either of those named. Not only do they possess size, but refinement; and added to this the habit of growth is a recommendation of no mean order. When we consider that the variety bearing my name has been in existence eight years and still comes within one vote of the maximum it should be gratifying to the raiser, especially when we know that the constitution of Japanese Chrysanthemums usually deteriorates so quickly. Sunflower still holds its own as a yellow flowered variety, in spite of perhaps more opposition than in any other colour.

Miss Dorothea Shea has steadily advanced until it occupies the tenth place in the list. Etoile de Lyon obtains sixty votes, a sufficient proof that it still has admirers. Viscountess Hambledon,

despite the difficulty experienced first in obtaining cuttings, and secondly in its tendency to set premature buds, has secured no less than fifty votes, which proves that its merits are appreciated. Niveus, a pure white flowered variety, occupies a prominent position, seeing that it is comparatively new, equalling the old favourite Avalanche. Boule d'Or, introduced as far back as 1882, just secures a place, which is a distinct tribute after twelve years' service.

The selection includes all forms or types of Japanese, if I except those with hirsute florets, a section not generally in favour. The list contains few sorts that can be found fault with on the score of quality, excepting Mrs. E. W. Clarke and Mrs. C. H. Payne. These two I do not personally regard with favour, as under ordinary culture the blooms display a want of refinement. The selection of twenty-four varieties is an admirable one, and an exhibitor who could stage that number in the best condition would be extremely hard to beat. Not only in this list but also in the twelve pride of place is still occupied by the two favourites, Vivian Morel and Charles Davis. Many more interesting comparisons and comments could be made, but I fear too much space has already been occupied.

I am indebted to all my coadjutors for the assistance they have so willingly given, and also for the excellent suggestions tendered by many of them, and a few of which are embodied in the following letters. That eminent authority, Mr. W. H. Fowler, writes:—"It is quite impossible to place them in their order of merit. There is such a large number of good sorts now that it is very difficult to pick out as small a number as thirty-six or twenty-four. I should think you would be giving much more assistance to growers by asking for the best sixty or seventy-two varieties. The country growers are much indebted to you for the time and trouble you take on their behalf. Why not try seventy-two after this?" Mr. Martin Standing says:—"I am glad you are again making a selection of Japanese Chrysanthemums, and I am also pleased to see the decorative sorts mentioned." Mr. A. Haggart writes:—"I have great pleasure in forwarding my selection. Twelve varieties of the decorative section is not enough. This is a most useful and interesting class, and deserving of more recognition." Mr. James Myers says:—"I shall be most interested in the returns when published." Mr. G. Foster writes:—"As so many new varieties come to the front every year it is a matter of great difficulty for experienced persons to select the best." (I would add how difficult it must be for the inexperienced!)

Mr. E. Beckett says:—"I think your idea excellent, and it will, I feel sure, be much appreciated by all who are about to form a collection, and also to many who are anxious to revise their lists." Mr. A. Coombes writes:—"Extending the number is a step in the right direction. I fancy next year you will have to make it forty-eight. I am pleased you have taken the decorative section in hand." Mr. Inglefield says:—"I think these returns are most interesting and serviceable to all growers, and a sure method of weeding out inferior varieties." Mr. Charles Lawton writes:—"Our list of incurved sorts increases yearly. Would it not be well to give the best twenty-four and twelve in that section another season? Such a selection would be much appreciated by recruits as well as by veterans."

Mr. Donald Forbes follows in the same strain. "I am more interested in what would be the best stand of twenty-four incurved, and hope it will be published later." Mr. Quarterman says:—"I am anxiously awaiting your report before making up my collection." Mr. R. Pinnington remarks:—"The *Journal of Horticulture* commenced a good work when it began to point out worthless varieties of fruit; but in publishing returns of the best Chrysanthemums it is doing a still greater." Mr. J. Hughes expresses himself thus:—"I think all Chrysanthemum growers (beginners in particular) are greatly indebted to you for the election, which must prove of great assistance."

From Wales the two following communications show in what way the election is valued. Mr. J. Dumble writes:—"It is impossible to over-estimate the importance and usefulness of last year's selections, and amongst growers in Wales there is an anxious desire to see another list at an early date." Mr. R. S. Williams says:—"I am greatly in favour of the system of analysis, and believe it is of great value to all. I know many cultivators who are waiting to see its publication before placing their orders for new varieties. It is not only valuable to beginners, but to old hands also."

Scotland sends the following testimony:—Mr. W. Rushton writes:—"I am confident last year's election was a benefit to many. The extension made will certainly enhance its usefulness. My opportunities are limited in seeing new varieties, therefore many of us in the north find these lists of the greatest value." Mr. Andrew Smith says:—"I can assure you the selections were both helpful and highly appreciated." Mr. D. Stewart, Cove, Dumbartonshire, writes:—"I have pleasure in submitting a list of Chrysanthemums which I consider best for culture in this district, exposed as we are to the Atlantic breezes."

Several cultivators in Ireland have lent able assistance. Mr. Hugh Crawford says:—"I think every Chrysanthemum grower is indebted to you for all the trouble taken." Mr. D. Crombie writes:—"I wish you much success in this most laudable object." Mr. John H. Cumming inquires:—"Could there not be a similar selection made with the incurved section?"—EDWIN MOLYNEUX.

We subjoin the selection of the thirty-six varieties, arranged as they are in their order of merit, and the remainder, as compiled by our able contributor, will be given in a future issue. We desire to thank him and all who have co-operated with him in this election.

VOTES FOR THIRTY-SIX VARIETIES.

69	Vivian Morel	14	Duchess of York
69	Charles Davis	14	Mdme. Octavie Mirbeau
69	Mdlle. Thérèse Rey	14	Beauty of Castlewood
68	E. Molyneux	14	W. W. Coles
67	Colonel W. B. Smith	13	Miss Anna Hartshorn
65	Mrs. C. Harman Payne	13	Golden Wedding
64	G. C. Schwabe	13	Van den Heede
63	Sunflower	13	Silver King
63	Mdlle. Marie Hoste	13	John Shrimpton
61	President Borel	13	H. L. Sunderbruch
60	Etoile de Lyon	13	Mdme. Carnot
58	Florence Davis	12	Préfet Robert
54	Miss Dorothy Shea	11	Souvenir de petite Amie
52	Stanstead White	11	Puritan
52	W. H. Lincoln	11	Miss Maggie Blenkiron
52	Louise	11	Gloire du Rocher
51	Duke of York	10	Violetta
51	William Seward	10	Mdme. Charles Capitant
50	Viscountess Hambledon	10	Lilian B. Bird
47	Avalanche	10	Alberic Lunden
47	Niveus	9	Mdme. Ad Chatin
44	William Tricker	9	Le Prince du Bois
43	Robert Owen	9	Mrs. Dr. Ward
38	Mrs. Falconer Jameson	8	Mdme. Ricoud
38	Lord Brooke	8	The Tribune
38	Primrose League	8	W. G. Newitt
36	Eda Prass	8	Mrs. E. S. Trafford
35	Charles Blick	6	Lady Saunders
34	Waban	6	J. S. Dibben
34	Mrs. E. W. Clark	6	Mdme. Cambon
30	Mons. Panckoucke	6	R. C. Kingston
27	Princess May	6	Beauty of Exmouth
25	Madame C. Molin	6	Mrs. G. W. Hubbuck
25	Boule d'Or	6	Mrs. E. G. Hill
24	G. W. Childs	6	Duchess of Wellington
24	Commandant Blusset	5	Edwin Lonsdale
23	Mons. Bernard	5	Mrs. E. D. Adams
22	Rose Wynne	5	Good Gracious
20	International	5	Mdme. Edouard Rey
19	Golden Gate	5	W. H. Atkinson
18	L'Isère	5	Pearl Beauty
17	Charles Shrimpton	5	Vice-President Audiguier
17	Amos Perry	5	Henri Jacotot Fils
16	Excelsior	4	W. K. Woodcock
16	Mrs. W. H. Lees	4	Mrs. E. G. Whittle
15	Col. Chase	4	W. H. Fowler
15	Wilfred Marshall	4	E. L. Jamieson
		4	Le Verseau

VOTES FOR THIRTY-SIX VARIETIES (Continued)

4	Mrs. W. H. Wheeler	1	Theodore Bock
4	E. W. Wheeler	1	Welton Beauty
4	Mons. Ad. Giroud	1	Mrs. G. J. Beer
4	Autumn Tints	1	Inter-Ocean
4	Louis Boehmer	1	Miss Muriel Scott
4	Mdlle. Thérèse Panckoucke	1	Mdlle. Lacroix
4	Thomas Wilkins	1	Cecil Wray
3	J. P. Kendall	1	Mrs. Cox
3	Violet Rose	1	Madame Baco
3	Enfant des Deux Mondes	1	J. Agate
3	Bouquet des Dames	1	Richard Dean
3	W. H. Lincoln Improved	1	J. Délaux
3	Mrs. E. Beckett	1	A. H. Neve
3	Princess Victoria	1	Thunberg
3	Mons. E. A. Carrière	1	Cesare Costa
3	Mrs. Bruce Findlay	1	Japonaise
3	Beauté Toulousaine	1	Hairy Wonder
3	Bride of Maidenhead	1	President W. R. Smith
3	Mrs. Libbie Allen	1	Mrs. Peter Blair
3	Mrs. George Gordon	1	Mrs. George Iis
2	Mr. H. Broomhead	1	C. Harman Payne
2	Eugène Dailledouze	1	Directeur Tisserand
2	Vice-President Calvat	1	Louis Meand
2	H. Shoesmith	1	Mohawk
2	Lizzie Cartledge	1	White Plume
2	Master B. Spaulding	1	Mdlle. L. Leroy
2	Robert Flowerday	1	Edelweis
2	Madame Calvat	1	Challenge
2	Madame Isaac	1	T. Tricker
2	Kentish Yellow	1	Gloriosum
1	Madame J. Beylié	1	Mrs. C. E. Shea
1	Comtesse de Galbert	1	Philadelphia
1	Mrs. J. Thompson	1	The Queen
1	Frank Wells	1	Marie Louise
1	Mrs. Airdrie	1	Miss Rita Schroeter
1	Miss Rose Shotta	1	Mrs. F. L. Ames
1	Elmer D. Smith	1	Lady T. Lawrence
1	Mrs. Alpheus Hardy	1	Harry E. Widener
1	Ralph Brocklebank	1	Mons. C. Molin
1	Mrs. R. J. Hamill	1	Madame Ad. Moulin
1	Thomas Hewitt	1	Sir E. T. Smith
1	T. W. Sanders	1	Ruth Cleveland
1	Edith Rowbottom	1	Mrs. G. Dittrich
1	Madame Morel	1	Eva Knowles
1	Alice Seward	1	Edwin Beckett
1	Président Armand	1	Madame J. Laing

TOMATOES AND THEIR CULTURE.

THE Tomato, *Lycopersicum esculentum* (Nat. Ord., Night-shades), is a native of South America, and was introduced 1596. Tomatoes, as is well known, are grown both under glass and in the open air in British gardens.

HOUSE CULTURE.

The Tomato succeeds the best as a rule in soil of a light sandy nature. It is rather an accommodating plant, provided there is ample light, heat, and not too much moisture in the atmosphere. A span-roofed house, with the ends north and south, is suitable for Tomatoes, because the plants are able to receive sunshine on each side of the house—the east side in the morning, the west side in the afternoon. It is a question whether Tomatoes can have too much light, provided they receive abundance of air and water.

RAISING PLANTS.—For the first crop sow seeds early in January in a temperature from 60° to 75° Fahr. The seeds may be sown in pans, shallow boxes, or 6-inch pots. Sow thinly; 1 inch from seed to seed will not be too far apart, and one-fifth of an inch will be quite deep enough for covering. As soon as the germinating seeds are seen to lift the soil place near the light, to cause the young seedlings to become sturdy in their early stages of growth. A compost of three parts loam, one part leaf soil or spent hops, one part sand, and half part burnt garden refuse is suitable for sowing in, the pots to be one-third filled with drainage.

Do not allow the seedlings to become crowded before taking them out of the seed pots, because when they are allowed to become matted together, roots and leaves, two or three weeks of valuable time is lost in growth early in the season which cannot be regained. It is of much advantage to the young plants to keep the glass clean over them. The young plants do very well in the above compost when three are placed round the sides of 3-inch pots until they become well rooted, then each plant ought to be placed in a 3-inch pot separately thus early in the season. Always endeavour to keep the plants as near the glass as possible. Out of 3-inch they may be placed in 6-inch pots; out of the 6-inch into their fruiting pots, which may be 10 or 11 inches in diameter.

SOIL AND POTTING.—The soil for potting the plants from 3 to 6-inch pots, also for fruiting in, may consist of four parts

loam, one part old lime scraps, half a part of burnt garden refuse, incorporating 1 lb. of bonemeal to 2 bushels of the compost. Always make the soil firm when potting or planting Tomatoes. There are thousands of plants ruined every year through planting in loose rich soil. Leaf soil is almost ruin to Tomato plants. In such a medium they make rampant growth at the expense of fruit, while an invasion of fungoid enemies is invited. When potting provide ample drainage; 2 inches in depth for a 12-inch pot will not be too much, to be covered with rough turf or moss. In potting or planting out in houses only fill two-thirds of the space with soil, leaving the remaining third for top-dressings. After the plants have set a good crop of fruit, rich top-dressings enable these to swell to maturity in less time than without such aid. Plants in beds ought to have a root run of about 18 inches, 12 inches only being provided at the time of planting, and made firm, with good drainage below. Train to single stems 15 to 18 inches apart.

WATERING AND STIMULANTS.—Watering requires to be carefully done. An over-supply to newly planted Tomatoes is ruinous, while too little causes the leaves to curl and turn a spotty brown colour. I am no advocate for pruning off the main leaves from the stems of Tomatoes. Tomatoes will not set a full crop of fruit when short of water. I have found nitrate of soda of great assistance in setting (when leaf soil is not used), 2 ozs. of the nitrate to 3 gallons of water, given twice a week for a fortnight or three weeks, or as long as the plants appear to require extra assistance by a stimulant. The Tomato cannot long remain in good health in a close damp atmosphere, than which nothing is more favourable to the dreaded *Peronospora infestans*, which causes the fruit to turn black as well as the leaves. We know what conditions of the atmosphere are favourable to the *Peronospora*, therefore those conditions we ought to endeavour to avoid at any cost. This is done by judicious ventilation and maintaining a somewhat dry atmosphere, keeping the plants at the same time regularly supplied with water. When full crops of fruit are swelling some good fertiliser will be of great assistance. A little, and often, is the safe practice to carry us on to a successful termination in growing a crop of Tomatoes.

FORMULA FOR TOP-DRESSING.

Nitrate of soda	...	...	...	...	4 lbs.
Superphosphate	...	...	...	...	10 lbs.
Muriate of potash	...	...	...	...	4 lbs.
Bonemeal	...	...	...	...	7 lbs.
Iron sulphate	...	...	...	...	1 lb.
Burnt garden refuse	...	...	...	...	28 lbs.

Mix all the ingredients; give a dressing of loam, half inch thick, over the roots, then apply the manure at the rate of 2 ozs. to the square yard and water thoroughly once a fortnight; give a dessert spoonful once a fortnight to the plants in large pots.

OPEN AIR CULTURE.

For raising Tomatoes to plant outside about the first week in June, also for growing a summer crop under glass, sow the seed and treat the young plants the same manner as for early fruiting. The first week in March is early enough for those to make a first sowing who have not the convenience for early fruiting. The plants require growing as near the glass as possible, also to be established in 6-inch pots without loss of time to enable them to have a bunch or two of fruit set and swelling before they are planted outside. Prior to this the plants will require hardening three weeks or a month in cold frames.

It is a good plan to plant above the ground level, as the roots will then be warmer. They may be planted against bare south walls, or grown against trellises similar to Raspberries across south borders, the rows 4 feet apart, 18 inches plant to plant. When they have set a crop of fruit they will require a stimulant, the same that is recommended for indoor plants being suitable, also the same kind of soil as that recommended.

VARIETIES OF TOMATOES.—These are legion, growers generally preferring their own selection. I fine Eccles Champion one of the best; Glenhurst Favourite, Challenger, Conference, Ham Green Favourite, Golden Queen, The Conqueror, Hathaway's Excelsior, Vick's Criterion, and a host of Perfections all have their admirers.

One of the greatest pests to Tomato growers in this neighbourhood is the white fly (*Aleyrodes vaporariorum*). I only know one antidote that will keep the pest in check in houses, and that is fortnightly fumigations with tobacco paper until they are cleared out.

SUMMARY.—There are two or three cardinal points which must not be overlooked to be successful in Tomato growing. First, do not keep a close moist atmosphere; second, do not use animal manure, or only in very small quantities, but chemical instead; third, do not plant in light rich soil, enrich the soil when

you have secured a good crop of fruit by top-dressings—a little and often is the rule to follow; fourth, do not let the plants suffer by want of water; fifth, keep a dry warm airy atmosphere if possible.

I am sorry to say that the eelworm attacks the roots of Tomato plants. I do not think there is any cure, but we may mitigate the effects a little by giving small doses of nitrate of soda weekly, 1 oz. to the gallon of water.—G. PICKER, *Gardener to F. R. Pease, Esq.*—(Read at a meeting of the Hesse Gardeners' Improvement Society.)



CATASETUM IMPERIALE.

I HAVE the pleasure of sending you a flower of the new *Catasetum imperiale*, Lind. et Cogn., of which we have a plant in bloom with a fine spike of fourteen flowers. I regret very much not having had the opportunity to exhibit this magnificent form at a meeting of the Royal Horticultural Society. It may interest the readers of the *Journal of Horticulture*. I certainly believe it to be the grandest *Catasetum* yet introduced. It was flowered from a recent importation of *Catasetum Bungerothi*.—J. LINDEN.

[The woodcut (fig. 5) represents the flower sent to us, the colour of which is ivory white, the lip being very bold in appear-



FIG. 5.—CATASETUM IMPERIALE.

ance and heavily stained with brownish red, while the upper sepals are spotted with the same dark colour.]

LANIUM BERKELEYI.

THE third species of this curious little group, which Lindley considered as a section of *Epidendrum*, though Bentham afterwards elevated it to the rank of a distinct genus. It was found in a clump of *Cattleya guttata* by Major-General E. S. Berkeley, Spetchley, Bitterne Park, Southampton, with whom it flowered in January, 1891; and now Messrs. F. Sander & Co., St. Albans, have also flowered it among their Brazilian importations. It is easily distinguished from *L. Avicula*, Benth., the other Brazilian species, by its much longer and narrower pseudo-bulbs and leaves, and less branched raceme. The flowers are light green with numerous minute red brown dots on the sepals, petals, and base of the column.—("Kew Bulletin.")

CYPRIPEDIUM NIVEUM.

CYPRIPEDIUM NIVEUM is one of the most delightful of all Cypripediums when it is happy and in full flower, its elegant white flowers, sometimes speckled all over with tiny purple dots, being without equal in the genus. But it is a bad plant to manage in most collections, being more liable to the dreaded Orchid disease

known as spot than any of its congeners. A contributor to the "Garden and Forest" says he has been told by a friend who has seen it growing wild in the islands off the Malay Peninsula that it is always found growing on the face of limestone rocks not far from the sea, its roots nestling among the débris formed in little depressions in the rock, and its leaves exposed to full sunshine. It becomes completely dried up for a portion of the year, but when the wet season returns it soon recovers and flowers profusely. No doubt we fail with this plant through growing it in the ordinary peat mixture in a moist, shaded house, and keeping it watered all the year round.

ORIENTAL LILIES.

THE reign of the Lily is almost co-extensive with that of the Rose. One of its many interesting families, the Ixiolirion, blooms contemporaneously with the earliest China Roses, which in our gardens are the first to develop their delicate flowers. Here the Siberian Lily, *Lilium davuricum*, appears in June, followed successively by *croceum* and *Thunbergianum*; then by *candidum*, *longiflorum*, *Martagon*, *auratum*, and *speciosum*, of which the last mentioned is the latest of all, often persistently blooming in the dreary confines of November, and continuing till its flower buds, for lack of ripening sunshine, are unable to expand.

There are many recent introductions from China and Japan, which have been named and duly classified by the great authority on Eastern plants, Mr. Baker of Kew. Such for example are *Lilium Henryi* and *Alexandrae*, the origin of which has not yet, as far as I can learn, been clearly ascertained, but the longer I live the more am I persuaded that of all existing Lilies for garden decoration *Lilium candidum* is the best. It is not, of course, so gorgeous in its colouring or imposing in its dimensions as *auratum*, nor have its flowers the size or far-shining splendour of *longiflorum*, but on the other hand it is a stately and exceedingly beautiful Lily. It produces a larger number of exquisite blooms; its flowers do not become tarnished by the agency of insects and the inevitable dispersion of its pollen, as do those of its great rival *Lilium Harrisii*, and thus its remarkable purity is unstained. If we would behold it in its full glory we should see it in the summer twilight, when the solemn shadows of evening are beginning to descend. Even when darkness is folding it round it glows with a lustrous beauty which the lover of Nature may intensely experience, but cannot describe. Can it then be said with truth that the Rose is "unapproachable," and "brooks no rival near her throne?" Nowhere is the Madonna Lily more majestic in her mien, or more dazzling in her chastity, than when she is standing with a most imperial aspect in the presence of the Rose.

Lilium longiflorum is, for reasons I have indicated, much better for distant than for near floral effect. I do not know what may be its attractiveness when confined to a conservatory from an entomological point of view; but this, at least, I can verify from experience, that when grown in the open air its great trumpet-like flowers are almost constantly haunted by most pernicious insects, that give its pollen a very wide circulation, and work on their outward surface to the destruction of whatever beauty pertains to its flowers. This I have very great reason to regret, for no Lily is more numerous in my garden, where it is luxurious in growth and tropical in habit, and where it also multiplies with marvellous rapidity. It would be the most beautiful and impressive of all Lilies if the strong winds of early autumn and the monstrous regiment of insects would but leave it alone. But even under these trying and often irritating conditions it is admirable when distance, almost redeeming by concealing its considerably modified complexion, lends enchantment to the view. He who grows it for this specially artistic purpose will be amply repaid. But he must not permit its affectionate offspring, which have a tendency to become overcrowded, to remain in those circumstances for any length of time; for otherwise the permission of this questionable privilege will come to have a very deteriorating effect.

Candidum, which does not so rapidly increase, is by no means very appreciative of frequent disturbance or subtraction; but *longiflorum*, which has manifestly considerably greater generative capability, is all the better occasionally of having its offspring, generally much too numerous, judiciously separated, that thus through isolation they may acquire greater strength.

Auratum is a Lily of a somewhat different nature; it does not increase with the same rapidity, and can seldom be expected to survive for many years. *Platyphyllum* is perhaps an exception to this general rule, which nevertheless cannot be too carefully remembered by him who desires to have successful *auratums* every year. He must plant new bulbs occasionally, at least, to accomplish this result. Doubtless those imported, however formidable in dimensions, have for obvious reasons a much shorter life in European gardens than those which are home grown. That they

find the long voyage from Japan to Great Britain somewhat exacting, and even demoralising, cannot be doubted by the most sanguine cultivator of these. Planted in many instances as late as February, they flower, under favourable conditions of soil and atmosphere, wonderfully the first year; but thereafter, as if completely exhausted by their efforts, they miraculously disappear, and the place that once knew them they adorn no more. This is the moral which is taught us by their premature decay: that unless they have leisure for the work Nature has assigned them—viz., that of root production, evanescence must be their destiny and death their sudden doom. They greatly resemble the pupils of Dr. Blimber in "Dombey and Son," whose intellects were forced in that august institution as if in some vastly overheated conservatory, with disastrous results.

Among the most admirable of Oriental Lilies for vitality and endurance are *excelsum* and one of its parents, *chalcedonicum*, perhaps better known as the Scarlet Martagon, *tigrinum splendens*, much cultivated for its remarkable brilliancy at Kew, and nearly all the existing varieties of *speciosum*, of which the most artistic is *L. Krætzleri*. It is, however, a fine weather production; a cold, wet summer like that of 1894 is inevitably injurious to the upper roots, and therefore also to the flowers, which long ere they reach their full development commence to decay.

The great Martagon family has a wide circulation. It chiefly exists in Central and Southern Europe; but *L. canadense*, on the other hand, as its name signifies, is a native of Canada; *columbianum* of Oregon, *Humboldtii* of California, *tenuifolium* of Siberia, and *Szovitzianum* of Asia Minor. Of these I think the most impressive in its beauty and stateliness is *Lilium Humboldtii*. If more widely cultivated it would soon become exceeding popular, if only in virtue of its unique complexion, which is deep golden yellow distinctly shaded with purple, a colour which, however, is somewhat arduous to define.

Lilium Henryi, which comes to us from China, is the latest addition to my interesting collection. It may be described as a *speciosum* of apricot hue, of vigorous nature, and very floriferous. In this and other respects it is strongly contrasted to the Indian Lily *Nepalense*, which I cultivated last year, and then remorselessly relegated to oblivion. The latter demands a conservatory, grows rapidly to an imposing height, and then produces with obvious difficulty two solitary flowers; which, however beautiful, are destitute of fragrance, and cannot be compared to those of *auratum*, *longiflorum* or *speciosum* for impressiveness of aspect or splendour of effect.—DAVID R. WILLIAMSON.

INTERVIEWING A NOTED GRAPE GROWER.

(Concluded from page 12.)

HAVING briefly discussed the questions of soil, pruning, dressing, and other matters in routine, the questions of the splitting of the berries, colouring, and watering of borders were next touched on. Split berries, Mr. Craven considered, were the most common on Vines in heavy soils. In light soils a fear of watering on account of cracking was apt to cause the skins to become hardened, so that when water must be given if the crop is to be finished the sudden flush of sap causes the skins to expand too suddenly. Damp atmospherical conditions also cause it. He waters the Vines steadily through the season, continuing until the Grapes are finished. Black Grapes, he remarked, colour best under shade, but not too much for the thick-skinned kinds, as they require longer and higher feeding than the midseason varieties. The borders are watered as long as the foliage remains green. A ruinous practice is to allow them to become dust dry. Yet they can be over-watered so as to become sour. The most certain remedy then is to lift and relay the roots in fresh soil. Outside borders should have protection against excessive wet.

"You say you would lift and relay. What is your idea as to the best way to proceed?" This was the reply to that question. "If the roots are deep they should be raised, as no compost will draw roots up through a foot or more of soil. If the roots are fibreless I would lift and relay horizontally in borders one-third the original width, notching strong roots here and there, from whence fresh feeding roots will be emitted in due course. Where roots are in fairly good condition, but the border impoverished, I would not hesitate to cut straight through it—say, 8 or 9 feet from the Vine stem, and lift to within 3 feet, relaying the shortened roots in new compost. This will cause branching fibres to issue close home, and not merely at the extremity of the border. When lifting is not carried so closely to Vines I have known Grapes shank badly and never finish. Thus one has by degrees a whole border full of roots, which border can be added to as they extend. As proving what can be done in this direction, we had Vines here

which had not been disturbed for twenty years that were treated as described, even while Grapes were hanging on them, and first prizes have been won with Grapes from these Vines several years in succession at the leading exhibitions in the country."

To those remarks of Mr. Craven, I may add the rods were 18 feet in length when the lifting was done, and the border inside the house. A light shading with limewash and syringing prevented the leaves flagging, fresh root-action thus commencing at once. The border is now 9 feet wide, with an addition of 3 feet this season. We next discoursed on the subject of late summer growth. Mr. Craven thought this should not be encouraged except where Grapes, through force of circumstances, are not ripe. From the end of August to the middle of September all growth, he said, should be finally suppressed and gradually shortened back as the wood gives indication of ripening. Then roots also ripen and are preserved throughout the winter ready for action in the spring. A most important point.

Mr. Craven thinks correspondents who often advise pruning to several eyes from the main stem lose sight of the question whether the Vines or borders are capable of finishing such extra large bunches as are then likely to be produced. By this practice the Vines get unsightly. The nearer the bud is left to the main rod at pruning time the better the supply of sap to the lateral. It does not circulate so well up old knotted spurs. Under proper management a good bud is generally found at the base of each lateral, the bunches from such buds being compact and well finished.

Mr. Craven went on to say, "Denuding Vines of bark at cleaning time is an unnatural practice, and detrimental, as may be observed in the difference of those so peeled and others more rationally treated. The rods can be cleansed by washing them with fairly strong soapy water, syringing it off shortly afterwards. Cutting out growth wholesale is a barbarous practice, and will cripple the best of Vines in time." The last question related to red spider, and for this sponging with moderately strong soapy water in which a little sulphur had been mixed was recommended, sulphuring and heating the pipes being too parching, and syringing marking the fruit.

In conclusion, I would say that the above remarks embody the practice which has made the Allerton Priory Grapes famous. Many would say that perhaps the Vines are not heavily cropped, but I can answer that they bear abundant crops, and trust that this record of Mr. Craven's good work and methods may be interesting and useful to some readers of his "auld freen," the *Journal of Horticulture*.—R. P. R.

THE FLORISTS' TULIP.

[By JAMES W. BENTLEY, Hon. Secretary to the Royal National Tulip Society.]

CHAPTER IV.

(Continued from page 557.)

THE glass lights are placed closely together on the framework above the beds immediately after planting. They are securely tied down to the rails on which they rest; if this precaution is neglected they will probably be found blown off and wrecked during windy weather. The sides and ends of the beds are left completely open and unprotected until all the plants are out of the ground, which is generally about the beginning of March. From this time more care is necessary if the bloom is to be in good condition.

As the plants grow the guard leaves of the foliage fall back, and leave a hollow in the middle of the plant, from which in due time the bud rises. Rain and drip are very likely to fall into this hollow, which is sufficiently watertight to hold all that it can contain for a long time, and so a cup of cold water is formed in the heart of the plant, and at the bottom of the cup is the young bud. The constant presence of the water is bad enough, but when frost comes the water freezes, and the tip of the tender young bud becomes frozen too, and permanently crippled in some way or other. The injury to the bud may not be apparent for some time; it may rise clear of the foliage, and look perfectly right, but as it begins to increase in size and show its colours the character of the mischief done becomes visible. In some varieties the tops of the three outer petals remain perfectly green, the power of expansion observable in the rest of the petal is paralysed in the green tips, and the flower is rendered unsightly and worthless; in others there is no absolute disfigurement of this kind, but the growth of the three outer petals is arrested, and they remain dwarfs, whilst the three inner ones that have been protected somewhat keep growing, and a most ugly appearance is produced.

The glass coverings to the beds prevent to a great extent water lodging in the heart of the plants, but in spite of it many will be found in very wet weather full of water. The beds should be looked over at frequent intervals, and this water removed. It can

be drained away by gently separating the leaves with the hands, or blown out by means of a glass tube.

On frosty nights, if the frost be at all severe, the beds should be further protected by having the sides covered with mats or stout canvas. I use canvas made of jute, about 45 inches wide, and wrap it all round the outsides of my beds; the posts which support the framework carrying the lights support the canvas in a vertical position, and being all in one piece the canvas is soon put round, and the collection made snug for the night. No covering is put on the glass lights, and the open space between the two beds is left unprotected also.

In very stormy weather, or when the bitter east wind roars through the land for many days together, the canvas screen is kept up on two or three sides both night and day. The effects of continued wind on the tender green foliage are cruelly severe. The succulent leaves, withered and broken, become unable to perform their functions, much to the detriment of both flower and bulb. In such weather the canvas may be kept up on two or three sides for days together; the glass is allowing the plants to have both light and what sun heat there may be, and abundance of air reaches them.

When the plants are all well up it is a good plan to stir the surface of the beds between the rows with a stick of hard wood, or a dull pointed iron skewer, taking great care not to injure any of the leaves or stems. Plants that are going to bloom are easily distinguished from non-bloomers soon after appearing through the soil; the former show two or more leaves, while the latter send up one leaf only, and are technically known as *widows*.

If the morning prove sunny after a severely frosty night, the canvas should be kept up for a while, as frozen plants suffer much injury when exposed at once to the sun, and should be allowed to thaw gradually in the shade.

As the flower stems rise more care will have to be taken to protect from strong winds, as the buds are easily damaged by being knocked against each other when swayed roughly about. Late April or early May frosts must be specially guarded against by the protective means before mentioned; if they are severe enough to bow down the tender green heads mischief to the marking is almost certain to ensue, and in all probability the quest for "good feathers" at blooming time will be a vain one.

In the latter part of April or the early days of May the enthusiastic grower begins to see the first fruits of his labours. The buds commence to alter in shape and size and show signs of colour and marking. Every day his experienced eye detects fresh beauties and probably fresh disappointments. Now he will find out whether his culture and care have been good, and if reassured on this point each day will bring a succession of new delights, and for a few weeks he will be unfit to associate with the ordinary varieties of his species, to whose dull minds his outpourings in praise of his "feathered Paxton" or his "flamed Talisman" will seem like the ravings of Bedlam.

As the plants come into bloom they must be protected from the direct rays of the sun, which is easily done by covering the glass lights with thin calico. This calico once on may remain as long as the plants are in flower. If the beds are in a situation very much exposed to the sun it may also be necessary to put up a screen of similar calico on the outside of the beds. Direct sunlight and heat cause many varieties to flush, that is the petals become suffused with the marking colour, and all distinctive marking is lost. They also cause the anthers of some varieties to become stained, and shorten the life of the flowers considerably. Strong winds must, of course, be guarded against at blooming time by the usual canvas or calico screens at the sides of the beds.

Tulips grown and protected in the manner described, especially if the soil be of a retentive nature, need little watering. The roots are deep below the surface, and even if the top covering soil for 2 or 3 inches be dry deeper down the bed is most likely to be damp enough. If, however, it is considered that the Tulips need water, rain water should be used, and it should be carefully given, by being poured gently from a watering can, without a rose on the spout, held almost close to the ground, so as to avoid wetting the plants. To be of much use a considerable amount must be given, a mere wetting of the surface of the bed being of no benefit to the deep seated roots. About the middle of April a watering with weak old liquid manure may be given with advantage if the plants seem to be short of robustness, but if the growth is strong and vigorous it will be well to withhold it. All watering should be done preferably in the evening, when the weather is mild and the sky cloudy.

It may be well now to recapitulate the advantages of the glass light method of protection over the older method, which is still in use by some growers. The rain is kept off and the drip falls clear of the beds, the dryness of the foliage and soil in early spring is assured, and the evil effects of frost thereby minimised; all danger to the plants and buds by hailstones is entirely avoided, and light

and air are freely admitted, no matter how bad the weather may be. The foliage and flowers are kept clean, and both stem and leaves are covered with a fine bloom like that on the skin of a Grape. There is no drawing or forcing of the plant, and little or no difference in the time of blooming as compared with Tulips grown entirely unprotected. The saving in labour to the grower is immense; the constant watchfulness inseparable from the old system is reduced to a minimum, and thus Tulip culture is made more acceptable to this ease-loving age.

By a few growers the glass protection has been carried still further by growing the Tulips in a permanent glass house. The Rev. F. D. Horner adopts this plan, and uses a glass house which contains two beds and is about 12 feet wide, 50 feet long, and 8 feet high in the middle of the house. The glass sides are 4 feet high, and they, as well as the glass in the ends, are removable. The glass roof remains on always, but the sides and ends are only affixed as blooming time approaches, and even then are kept wide open except in windy weather. This "glass umbrella," as Mr. Horner calls it, has proved, to use his own words, "a perfect paradise" for Tulips.

I have seen the idea carried still further at Petersfield, Hants, where the late Mr. Lloyd grew his large collection in two spacious greenhouses warmed only by sun heat. The Tulips were in full bloom at the beginning of April; and at first sight the thousands of large flowers opening in the genial air and rising from most luxuriant foliage, uninjured by weather in any way, made one almost envy the possessor of such a house. But on further examination it became apparent that although every care had been taken to insure their well-doing, and numerous standard sorts were grown, there was scarcely a correctly marked flower in the whole collection. Not a single approach to a feathered flower could be seen, and the thousands of flames were with two or three exceptions heavy, dull, and muddled in their markings. The bulbs when taken up were large, but too light in weight for their bulk and rather soft. They were also liable to sudden death both in the plant and bulb state. I could not help coming to the conclusion that the glass-house culture was the sole cause of everything that was wrong, and that the unnatural conditions had induced what might fittingly describe as apoplexy in the collection.

Glass-house culture must, in my opinion, be pronounced quite unsuitable, and although I by no means include Mr. Horner's "glass umbrella" in this condemnation, I am inclined to think that the system of protecting by glass lights is about as far as it is desirable to go. Mr. Horner has, without doubt, produced under his "umbrella" some of the most magnificent Tulips ever seen, but continued culture in this manner year after year has, I think, a tendency to develop in some degree the evils so prominent in the case of Mr. Lloyd's Tulips, not so much as regards the health of the bulbs as the marking of the flowers.

The blooming period may be said to last for six weeks, and although the Tulip is supposed by the many to be a short-lived flower, I think I may say the most enthusiastic grower finds the time long enough. It is a period of great enjoyment and much work. Every bloom is inspected carefully and compared with the Tulip book, and notes on its quality or any other desirable particulars duly entered there. If the grower be an exhibitor the great question, as May draws on, of what flowers will be ready and fit to show will have careful consideration. If seedlings are to be raised, suitable parents for fertilisation have to be decided on, and the decisions carried out. Visits are exchanged with other growers, and bargains made about mutual exchanges or purchases. Soon the day arrives when the grower, with his flowers carefully packed, starts full of hopes and fears for the annual exhibition held by the Royal National Tulip Society, which is the event of the year to him, for no matter whether he stands high in the prize list or not, he meets his brethren gathered from far and near to do honour to the flower. The Society, which has existed for nearly half a century, although now neither numerically nor financially strong, still quietly flourishes, and is a bond of union among all good Tulip growers, which is sundered only by death.

(To be continued.)

NEW YEAR'S GREETINGS.

"GET thee gone, 1894!" Such are the words with which your correspondent "E. K." bids adieu to the dying year, now counted among the past. Rather a hard good-bye some may say, who perchance have reason to review the past year with thoughts of satisfaction and gratitude; but be that as it may, old Father Time passes slowly yet surely onward, innocently oblivious of the maligns or praises that may be showered upon him. Let us, therefore, be content to "Let the dead past bury its dead," and give the New Year a joyous welcome, not with gloomy fears and dull

forebodings, but rather with high hopes that success will crown all our carefully planned schemes and honest endeavours.

From a gardener's point of view the New Year comes as a fresh awakening. We must brood no longer over the disappointments, or chuckle over the successes of the past year; but be "Up and doing," as the tide has once more turned, and we can see looming in the distance spring's busy days, followed by the ripening and in-gathering periods of summer and autumn, and so our thoughts should be diverted from what has been to what is to come.

Preparations must now be made that success may follow, and though in all our efforts we are ruled to some extent by the caprices of an ever-changing climate we can by our efforts contribute our share to the vast concern which makes up the success of seedtime and harvest, and trust and hope for Nature to do her part. In every department of the gardening world the machinery must be set going—indeed, if it has ever been stopped. In the fruit gardens and orchards we shall soon commence talking of prospects, so that all seasonable work, such as pruning, cleansing, dressing, and replanting, should be pushed on with such dispatch as weather permits.

The kitchen garden likewise claims attention. Conclusions have to be formed where each and every crop shall be located, and operations commenced for the preparation of the ground for the same. Seed supplies must be attended to, and numberless other details known only to the gardener himself, so that everything may be in order and nothing found wanting when spring's warm sunshine and gentle showers arrive. In the pleasure garden it is the same. Shrubs perhaps require shifting and pruning; there may be new beds to be made and fresh turf to be laid; walks perchance require gravel, and drains want opening; fresh peeps of landscape may be formed which in later summer days shall call forth expressions of admiration. The new year reminds us that time flies fast, and now is the day for such operations.

Turning to the glass department there is the same general awakening to activity. Early Vines and Peach trees will now of course be in a state of growth, and in the case of succession and late houses the pruning and cleansing of trees and houses, top-dressing and renovating of borders, should be pushed forward and brought to conclusion as speedily as possible in order that there may be no scurry as busier days advance. Then there are the Chrysanthemums; we have hardly done thinking about them, and yet New Year says we must begin again, and perhaps in the cuttings as they are put in, we can see in imagination all the form of a silver cup or some other diploma of merit.

It seems early to talk yet of summer bedding, but the new year reminds us that there is much propagation to be done in order that our supply may not be short when planting time comes, and so it must have its share of attention, and we picture in the mind's eye what the future designs shall be, and make preparations accordingly. Thoughts also turn to future crops of Melons, Cucumbers, and Tomatoes; if not already done, seed should be sown at once and frail young plants nursed through the cold days that follow, in order that early fruit may be gathered.

And so we welcome the New Year, with bright hopes and anticipations together with the duties and responsibilities which it brings, and when its turn comes to glide away into the silent past may we part from it with thoughts of regret and still of satisfaction, that our brightest hopes have been realised and highest ambitions attained.—GEO. HOLLINGWORTH, *Alton Towers*.

MESSRS. SUTTON & SONS' PEA ALBUM.

THIS eminent firm are to be congratulated on the production of their very beautiful Pea album, the illustrations of which are all correct photograph copies, and therefore depict exactly the forms and sizes of the pods of the various Peas illustrated. Purchasers of varieties here pictured will find this album valuable as enabling them to compare the pods and foliage of their grown plants of any sort with the photograph illustration as published by the firm. In illustrations of this kind the fanciful tastes of the artist have no room for play. What is pictured is what is grown, and the samples are absolutely perfect and true to character. That is a method of illustrating garden products which all will appreciate. If the days of the imaginative sketcher in garden catalogues are gone for ever, horticulture will have much cause to rejoice. Apart from all this, however, the great Reading firm have done a handsome thing in issuing not merely a Pea list, but a drawing-room album of garden products. Such a publication helps greatly to lift such things into a higher level—in fact, rather into the region of art than of mere prosaic culture. I rejoice to see this publication and these excellent illustrations, as gardeners will rejoice, even more perhaps, at the introduction of such splendid sorts of Peas.—D.

[We have received a copy of the album referred to by our correspondent, and are able to say that his references to it are well merited; it would, in fact, be difficult to overpraise the work either in respect to accuracy in representation of the twenty-two varieties of Peas portrayed or the superb artistic finish of the work.]



EVENTS.—At this season of the year the horticultural world, so far as shows are concerned, is not very busy. The Royal Horticultural Society hold a meeting at the Drill Hall on Tuesday next, while on Thursday, 17th inst., the fifth-sixth annual general meeting of the Gardeners' Royal Benevolent will be held at Simpson's Hotel, 101, Strand, commencing at 3 P.M.

— **THE WEATHER IN LONDON.**—The weather in London during the past week has been very different from that in the northern counties of England and Scotland, where heavy snow storms have prevailed. Though there has been practically no snow here the weather has been clear and frosty all the week, but no severe frosts have been experienced. Two or three degrees in the town and slightly more in the suburbs is about the average. On Monday it was 4° warmer in London than at Nice, in the south of France. At the time of going to press the weather is dull, cold, and foggy.

— **THE WEATHER IN THE NORTH.**—The year opened with a beautiful winter day, and, with the exception of a slight thaw on the 2nd, the first week has been seasonable throughout; frost of from 7° to 13° on Tuesday morning having been recorded. The country is under a thin covering of snow, and occasionally the northerly winds have been piercingly cold.—B. D., *S. Perthshire*.

— **THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.**—The fifty-sixth annual general meeting of the members of this Institution will take place at Simpson's, 101, Strand, London, on Thursday, January 17th, 1895, when fourteen pensioners will be added to the funds—eight by resolution under Rule 3, and six by the votes of subscribers. The poll will open at 3 P.M., and close at 4.30 P.M. precisely. The voting papers have all been issued. Any subscriber who has not received a copy will oblige by communicating with the Secretary. After the annual meeting, and at the same place at 6 P.M., the usual friendly supper will be held, presided over by Mr. George A. Dickson, of Chester. The Committee will heartily welcome to this gathering any friends and supporters of the Institution who may desire to be present, tickets for which may be obtained on application to the Secretary, George J. Ingram, 50, Parliament Street, London, S.W.

— **THE GARDENS OF THE ROYAL BOTANIC SOCIETY.**—At the meeting of the Fellows to be held on the 12th inst. the opening of these Gardens to the public will be discussed. In August last a resolution was carried at the annual meeting recommending the Council to consider the expediency of admitting the public to the Gardens on week days on payment at the gates. The Council has since decided to so open them on Whit-Monday, a concession which many of the Fellows deem quite inadequate, and Mr. Rubinstein, the mover of the original resolution, and for some years Honorary Auditor, has given notice that at the general meeting to be held on the above date he will move that after March 1st the Gardens be opened on Monday, Thursday, Friday, and Saturday in each week on payment of 6d., and other days 1s.

— **TOO MANY APPLES.**—We are sorry to hear, says the "Field," that a proposition made at the Horticultural Society by Mr. Rivers, to limit the great number of dishes shown by nurserymen to fifty kinds, was defeated. That number is fully twice too many, and we regret that nurserymen will continue in their own way showing huge collections of Apples, instead of fixing their attention on the really essential kinds, and giving us good stocks of them in all shapes for real fruit-growing, as distinguished from making collections of Apples—the two things being wholly different. We mean good stocks of Apples that are of first quality in all ways. While our growers are confused by a medley of varieties, the American grower is quietly pouring into our markets thousands of barrels of Newtowns and Baldwins. Many English growers have Apples about them which they do not even know the names of, and half the Apples described as first-rate in the catalogues are second-rate or inferior. We feel sure that it would be the best service to the trade to pursue that course which would enable growers, landowners, planters, and all connected with land to get a stock of healthy trees of the best quality for our country. By far the greatest obstacle to that is

the bulky catalogue, as, owing to its influence, the worthless fruits are grown everywhere. [We think Mr. Rivers' proposition was not defeated, but carried by a large majority of votes by the Fruit Committee.]

— **THE ICE HARVEST AT WINDSOR CASTLE.**—At Windsor Castle a number of the Crown labourers have been engaged in filling a great well under the north terrace near the Winchester tower with thick ice which had been collected from the Royal skating pond. The well holds about 200 tons. The ice therein, and in another receptacle under the east terrace, is stored for the use of the Lord Steward's department.

— **CLEANING VINES.**—Probably many of your readers, like myself, would be glad to see the above subject well thrashed out in your columns, for when doctors differ, who is to decide? Mr. J. J. Craven's success as a Grape grower and exhibitor evidently shows that his method is not far wrong. Still we should like to see other noted Grape growers' opinions on the subject. Will they oblige us?—H. CHARMAN, *Trusthorpe Manor, Mablethorpe*.

— **GARDENING APPOINTMENTS.**—Mr. George Jordan, till lately gardener to Rev. H. A. Berners, Harkstead Rectory, Ipswich, has been appointed head gardener at Shortgrove, near Newport, in Essex, by J. Bailey, Esq. Those who are acquainted with Mr. Jordan feel confident that he will give a thoroughly good account of himself in this extended sphere of action and greater responsibility. Mr. Stuart Compton has been appointed head gardener to T. D. Eden, Esq., Beamish Park, Chester-le-Street, Durham.

— **ROYAL HORTICULTURAL SOCIETY'S MEETINGS IN 1895.**—A correspondent desires to know the dates of the above meetings, and rather chides us for not publishing them, especially as he "casually saw a list in another gardening paper some weeks ago." We can only presume that there has been either a mistake or miscarriage, as we were informed by the officials of the Royal Horticultural Society early last year that it is the "custom of the office to post matter for the press on Mondays, so that all the papers receive announcements the same week." This is a good and fair custom, but we have not yet received the list desired.

— **THE KEW TEMPERATE HOUSE.**—The great Temperate House, or Winter Garden, at Kew, was commenced in 1860. In 1861 the octagons were finished. In 1862 the centre block was completed. The original design included two wings. These, however, were never erected, though the raised terrace was prepared for them. The Treasury has now sanctioned the erection of the southern wing, and the proposed works are being already taken in hand. It is proposed to maintain in this a warm greenhouse temperature, so as to allow an adequate cultivation of many economic and large succulent plants, of which the existing accommodation afforded them at Kew does not permit the satisfactory development.

— **A FOREIGN FLOWER MARKET FOR COVENT GARDEN.**—There is a shed approaching completion in the open space abutting on Tavistock Street, which will accommodate when finished the stands of the dealers in foreign flowers. Hitherto these dealers have had no portion of Covent Garden Market set apart for the sale of their goods, and it has been considered that in many ways it will be an advantage to have this part of the trade carried on in a separate building. The building, which measures about 60 feet by 40 feet, and is perhaps 30 feet in height to the apex, is situated at the eastern end of the open market, therefore it is but a step or two from the flower market—the centre of the home flower trade of London.

— **WINTER TOMATOES.**—There is no difficulty in having plenty of good Tomatoes from old plants that have set fruit well in September, ripening up to the end of November. Later they become very scarce, and it is difficult indeed to have good fruits from the middle of December until the end of March, even under the most favourable conditions. For that reason I was particularly pleased to see a nice crop of fair sized and handsome fruits on a dozen of plants that were growing close under the roof in a span house at Hackwood Park on December 28th. These plants were raised from seed sown early in August, and now in 8-inch and 9-inch pots. Some good coloured fruits had been gathered, and there were on the plants a capital succession. As the plants were in the way of nothing, their growing cost hardly anything. The variety was one of the Perfection type, smooth and handsome. Happily it is now found easy to fruit in winter smooth-fruited strains, as it is the old deeply sutured forms that some gardeners still grow, and yet have so little value.—A. D.

— WE learn that the Director of the Royal Gardens, Kew, has been elected an honorary member of the New Zealand Institute in recognition, amongst other grounds, of the aid he has so cordially rendered to botanists in the British Colonies.

— SOCIÉTÉ NATIONALE ET CENTRALE D'HORTICULTURE DE FRANCE.—We learn that Mons. D. Bois, one of the assistants in the Botanical Department at the Jardin des Plantes, has been elected Editing Secretary to the above Society in place of the late Mons. Duchartre.

— A GIANT OAK.—There exists an Oak at Pilkallen, whose dimensions ought to be recorded. At the base it measures $7\frac{1}{2}$ yards in circumference, while it is between 90 feet and 100 feet in height. The age of this huge giant has been estimated at 1000 years, and every spring it is covered with a beautiful crown of leaves, so dense that neither rain nor snow can find their way through it. Last year, says the "Gartenflora," two limbs removed from it furnished sufficient wood to construct a mill. For a century past this giant has been close upon its present dimensions. From time immemorial the inhabitants of the district have always seen a stork's nest constructed in the thick branches.

— ROYAL METEOROLOGICAL SOCIETY.—Two meetings of the Society will be held at 25, Great George Street, Westminster, on Wednesday, the 16th inst. The first will be an ordinary meeting for the election of Fellows and the transaction of ordinary business, and will commence at 7.30 P.M. At it the following paper will be read:—"The Gale of December 21st-22nd, 1894, over the British Isles," by Charles Harding, F.R.Met.Soc. At 8.15 P.M. the annual general meeting will commence, when the report of the Council will be read, the election of officers and Council for the ensuing year will take place, and the President (Mr. R. Inwards, F.R.A.S.) will deliver an address.

— FRUITING OF AN ALLAMANDA.—I am forwarding you a seed-pod of an Allamanda, and would be glad to know if it is unusual for these plants to fruit, as it is the first one I have ever seen. It was not observed until the beginning of September, and was then as large as it is now. I have taken about two dozen seeds from the pod, but send you one or two.—W. J. IRELAND, *Sedgwick, Kendal*. [It is certainly very uncommon for the Allamanda to bear fruit, though no doubt many of our readers will be able to cite instances. We trust you will be successful in raising some plants from seeds, but we are doubtful, as neither the seeds nor the pods were nearly ripe when taken. Perhaps you will let us know how you progress? For the benefit of those readers who have not seen the fruit of this plant, we might add that it is about the size of a hen's egg, and thickly covered with stout, somewhat blunt, spines.]

— MAKING ICE.—The "Daily News" says:—"The Niagara Hall Company in York Street, Westminster, are showing how the treachery of our winters may be defied. They have opened a skating hall, laid with real ice. There are 10,000 square feet of it in a circular arena, with lounges around, and a gallery above for spectators. While the temperature of the hall is maintained at a stage that enables the skater to cast aside wraps and skim around bareheaded, the ice is always hard and dry and in excellent condition; and the freezing machinery, having served the hall, is capable of providing a surplus of pure ice for the market. Eight tons of ice must be made per day to keep the rink in perfect state, and the processes of producing cold, or rather absorbing heat by the compression of ammonia gas, are not the least interesting of the attractions of Niagara Hall in its most recent development.

— SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, IN DECEMBER.—Mean temperature of month, 40.8° . Maximum on the 13th, 53.4° ; minimum on the 1st, 26.1° . Maximum in the sun on the 20th, 79.3° ; minimum on the grass on the 21st, 19.2° . Mean temperature of the air at 9 A.M., 40.2° ; mean temperature of the soil 1 foot deep, 41.5° . The number of nights below 32° , in the shade, eleven; on the grass, twenty-one. Total duration of sunshine in the month, thirty-four hours, or 15 per cent. of the possible duration. We had fourteen sunless days. Total rainfall, 1.39 inch. Rain fell on fifteen days. Average velocity of the wind, 12.9 miles per hour. Velocity exceeded 400 miles on ten days; fell short of 100 on five days. Approximate averages for December:—Mean temperature, 37.1° ; sunshine, thirty-two hours; rainfall, 1.97 in. It was the warmest December since 1876. No snow or frost of consequence till the last few days. The gale on the 22nd did much damage to timber, buildings and stacks. For eight hours, from 9 A.M. to 5 P.M., the average velocity of the wind was 60.5 miles per hour.—J. MALLENDER.

— DEATH OF MR. WILLIAM BARRON.—We regret to announce the death on the 27th ult. of Mr. William Barron, for many years in business as a nurseryman and landscape gardener at Sketty, Swansea, an elder brother of Mr. A. F. Barron of Chiswick.

— THE WINGED PHYLLOXERA.—Professor Rathay, in a paper read at the Viticultural Congress at Vienna, combats the notion that this is destructive to the Grape Vine on the ground that the insect lives only four days at the hottest season of the year; another condition being that there must be no wind. The flight of the insect is feeble, and moreover it deposits unisexual eggs, a fact which militates much against its multiplication.

— VANILLA CULTIVATION IN MAURITIUS.—A correspondent in Mauritius calls attention to the fact that the cultivation of Vanilla, which has hitherto been one of the staple products of the island, is rapidly diminishing, and will soon be a thing of the past. The cause has been put down to the continued robbery of the Vanilla estates by the Indian immigrants; but the real reason of the discontinuance is the increasing competition of the Vanilla grown in Bourbon, which can be produced there at a much cheaper rate, owing to the soil being more suited for its cultivation. The planters also complain that the fluctuation in prices, says the "Chemist and Druggist," per kilo render the article a very speculative one.

— LARNE HORTICULTURAL SOCIETY.—A general meeting of the members of this Society was held recently, Mr. Charles Howden, Invermore House, presiding. The Hon. Secretary's report showed that there was still left a credit balance in the Society's favour of £11 1s. 10d. The total receipts, including subscriptions for the year, amounted to £138 6s. 4d., and the prize list payments and aggregate expenditure in connection with the show to £128 4s. 11d. The thanks of the meeting were passed to Mr. D. A. Nelson for the manner in which he had discharged the duties of Hon. Secretary for the past year, and the report and balance sheet were adopted. The appointment of office-bearers for the ensuing year was deferred till first meeting in January.

— TECHNICAL EDUCATION IN AGRICULTURE.—Increased facilities for instruction in the science and art of agriculture are gradually being given to the Technical Education Committees in various parts of the country. We are glad to see it announced that Earl Cowper, Chairman of the Hertfordshire County Council, has offered to place a farm of nearly 300 acres, with residence and buildings, at the disposal of the Council, rent free, for the purpose of providing practical instruction in agriculture, on condition that the County Council stock the farm and work it. Lord Cowper has also undertaken to erect a laboratory and the necessary dormitories. A sub-Committee of practical agriculturists has been appointed to consider his Lordship's offer and report to the Council on it.

— WAKEFIELD PAXTON SOCIETY.—The Wakefield Paxtonians spend pleasant Saturday evenings all the year round, but on the last Saturday night in each year their proceedings are unusually interesting and enjoyable. At the last meeting in the year 1894 the large room, which had been seasonably decorated, was quite filled with professional and amateur gardeners, florists, botanists, and naturalists. Alderman Milnes presided, and the vice-chair was occupied by Mr. B. Whiteley. The proceedings, which occupied about three hours, assumed the form of a concert, the vocalists being a good contingent of the members of the newly formed Wakefield Harmonic Society. In an interval between the first and second parts of the concert Mr. and Mrs. Radcliffe entertained the company to supper, and the seasonable generosity was greatly appreciated.

— THE WEATHER LAST MONTH.—December was milder than usual, and the first snow of the season did not arrive until the 29th. Fog was prevalent until the 10th, and after that date rain was recorded daily, with only two exceptions, until the end of the month. The wind was in a westerly direction twenty-four days. Total rainfall was 2.12 inches, which fell on twenty-three days, the greatest daily fall being 0.43 inch on 11th. Barometer—highest, 30.41 at 10 P.M. on 27th; lowest, 28.906 at 9 A.M. on 22nd. Thermometer—highest in shade, 52° on 13th; lowest, 27° on 31st. Mean of daily maximum, 44.80° . Mean daily minimum, 35.67° . Mean temperature of the month, 40.23° ; lowest on grass, 22° on 1st and 9th; highest in sun, 77° on 29th. Mean temperature of the earth at 3 feet in depth, 43.38° . Total sunshine, 43 hours 5 minutes; eleven days were sunless. A thrush was heard singing on Christmas Day, and many varieties of hardy flowers were in bloom, owing to the mild season, the temperature having fallen below 32° only five times since October 23rd, and the lowest since that date being 28° .—W. H. DIVERS, *Belvoir Castle Gardens, Grantham*.

— **WOOLTON GARDENERS' MUTUAL IMPROVEMENT SOCIETY.**—The usual fortnightly meeting was held on Thursday evening in the Mechanics' Institute, Mr. J. Stoney presiding. A very comprehensive paper entitled, "Notes on Herbaceous Plants," which dealt with culture and kind, and provoked a good discussion, was read by Mr. Llewelyn Jones, gardener to W. Pilkington, Esq., J.P., D.L., Roby Hall, Liverpool.—R. P. R.

— **THE AMERICAN PEPPERMINT HARVEST.**—Although relatively small when compared with other crops it is of considerable importance. In the State of New York the area in 1894 devoted to the cultivation of Peppermint was 3000 acres, and the yield of oil about 65,000 lbs. In Michigan and Indiana 12,000 acres are returned as under this herb. The prices obtained for the essential oil were last year nearly 50 per cent. less than those obtained in 1893.

— **DECEMBER WEATHER IN SOUTH WALES.**—The following is a summary of the weather here for the past month. The number of days on which rain fell was eighteen. Total depth, 4.82 inches; maximum, 0.92 on the 21st; minimum, 0.01 on the 26th. Snow fell on the 29th. There were fifty-three hours five minutes of sunshine, and fifteen sunless days. Sharp frosts were experienced during the last few days of the month. The wind was in a westerly direction the greater part of the month. The total sunshine for the year was 1075 hours 35 minutes. Highest monthly total, 147 hours 30 minutes in March; lowest, 14 hours in January. There were 121 sunless days in the year. Total rainfall for the year, 61.92 inches; greatest monthly total, 8.54 inches in October; minimum, 2.15 inches in September; maximum for any twenty-four hours, 2.12 inches, on July 24th; average for the last eight years, 45.30 inches; maximum in that time, 63.30, 1891; minimum, 28.12, in 1887.—W. MABBOTT, *The Gardens, Gwernllwyn House, Dowlais, S. Wales.*

— **THE YORKSHIRE GALA.**—At the thirty-seventh annual meeting of the guarantors and life members of the Grand Yorkshire Gala, held at Harker's York Hotel, the Chairman (Alderman Sir Joseph Terry, J.P.) presided, and there was a large attendance of members. The Chairman congratulated those present on having again met under encouraging auspices. He was pleased to announce that, in accordance with their usual custom of electing as life members those gentlemen who had recently served the city as Parliamentary member or as Sheriff, that Mr. J. G. Butcher, M.P., the Sheriff (Dr. Tempest Anderson, J.P.), Mr. W. W. Hargrove, J.P., and Mr. H. Leetham, J.P., had been elected life members. He was pleased that the Association's deputation had secured the Bootham Asylum field for the holding of the Gala, on similar terms to those of previous occasions. He then proposed the election of the Lord Mayor (Mr. Alderman W. McKay) as President for the present year; Mr. Councillor Border seconded, and the proposition was unanimously carried. Mr. Alderman Milward then proposed the re-election of Sir Joseph Terry as Chairman. Sir Joseph had taken a great interest in the welfare of the institution, and he (the speaker) was sure that as long as he identified himself with the Association it would prosper. Mr. M. Cooper seconded the proposition, which was unanimously carried. Sir Joseph tendered his thanks for the compliment. Mr. Councillor L. Foster proposed the re-election of Mr. E. Rooke to the position of Vice-President, Mr. G. Kirby seconded, and the proposition was unanimously carried. On the proposition of Mr. M. Cooper, seconded by Mr. H. Scott, Mr. Joseph Wilkinson was unanimously re-elected Treasurer. Mr. Charles W. Simmons, on Mr. Councillor Dale's proposition, which was seconded by Mr. Balmford, was re-elected Secretary. Mr. Dale complimented Mr. Simmons on the way in which he had discharged his duties. The following gentlemen were elected to form the Managing Committee for the present year:—Mr. Councillor R. Anderson, Mr. G. Balmford, Mr. J. Blenkin, Mr. Councillor S. Border, Mr. J. Biscoombe, Mr. G. Browne, Mr. Alderman Clayton, J.P., Mr. J. W. Craven, Mr. M. Cooper, Mr. H. C. Day, Mr. Councillor R. P. Dale, Mr. Councillor L. Foster, Mr. G. Garbutt, Mr. J. G. Hodgson, Mr. J. J. Hunt, Mr. A. Jones, Mr. G. Kirby, Mr. T. M. Lambert, Mr. Alderman Milward, Mr. Councillor E. W. Parnell, Mr. H. Scott, Mr. W. S. Sharp, and Mr. J. B. Sampson. The Floral, Financial, and Entertainment Committees were elected, and the following grants were made:—For prizes to the floral exhibition, £600; for music, £120; for fireworks, £100; for balloon, £60; and for amusements, £175. The amounts are similar to those of last year, with the exception of the last, which is increased. A vote of thanks to the Chairman, proposed by Mr. Alderman Clayton, seconded by Mr. Councillor Border, and duly replied to, concluded the business of the meeting.

— **THE RAINFALL AT STIRLING.**—The rainfall here for the last month was 3.445 inches, which fell on twenty-three days. The greatest fall on any day was 1.050 inch on the 21st. In no day throughout the year has there so much rain in so short a time—ten hours. The mean maximum temperature was 44.1°, the mean minimum 33.3°; the highest maximum was 54.5° on the 13th, the highest minimum was 42.2° on the 11th; the lowest maximum was 37.2° on the 31st, and the lowest minimum 25.7° was also on the 31st. We had eight nights below 32°. Altogether it was a good month for pushing forward outdoor labour, no sharp frosts interfering with it.—G. M. D.

— **DIFFERENT FROM ENGLAND.**—Victoria, says the "Echo," was visited by a remarkable heat-wave lately, the degree of heat registered in Melbourne being higher than anything yet recorded since the founding of that city. At the government observatory in Melbourne on November 27th the thermometer registered 152° in the sun and 106° in the shade, and the intensity of the heat was responsible for a good deal of sickness in the way of partial sunstrokes and kindred affections. In other parts of the Colony the heat was also excessive; in fact, the heat-wave appears to have passed right across the southern portion of the Australian Continent, from west to east, growing in intensity as it went along, Victoria of course getting the worst of the visitation.

— **HEAVY APPLES.**—I notice on page 6 of your last issue a few remarks about heavy Apples, and as the weights of the outdoor Apples there mentioned did not reach those of fruits grown by Mr. W. H. Bannister of Cote House, Westbury-on-Trym, Bristol, I herewith send them. Among the fruit of Peasgood's Nonesuch, grown on a young bush tree in the open in 1893, largest weighed 28 ozs.; two weighed 3 lbs. 7½ ozs.; six weighed 8 lbs. 13½ ozs., and twelve weighed 15 lbs. 13 ozs. Mr. W. Garaway, Bristol, weighed them. Representatives of the "Bristol Times and Mirror," tested the figures and published the weights in their paper the following day.—W. STADDON, *Stoke Bishop, Bristol.*

— **MR. COLLINS.**—Readers of this paper will, I am sure, agree with me that by the death of this gentleman we have lost one of our most promising writers. Like many more, whenever I have read any of his articles, I have been struck by the great lessons that he has tried to instil into the minds of the gardening fraternity. There has always been a tone with them so pleasing, instructive, and encouraging, whatever the subject might have been. This is the sort of thing we want in these pushing times. I was asked the other day by a gentleman, "Does the art of gardening correspond with the times?" to which I answered, "Yes, a thousand times yes; go to our shows and see the exhibits of Roses, Chrysanthemums, vegetables, and fruits; they will speak for themselves." Just at the moment I had the Journal in my hand, and opening it, pointed out an article of Mr. Collins', which I asked him to read as a specimen of our literature, and after doing so he said this is the kind of thing we want in all our professions—more harmony and less discord, or, in other words, we want all the sound advice possible, and less *personal* criticism.—G. BURROWS.

— **DEVON AND EXETER GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.**—The annual supper of the Devon and Exeter Gardeners' Mutual Improvement Association was held on Friday last. Mr. T. E. Bartlett presided, and Mr. Jas. Weeks and Mr. James Andrews occupied the vice-chairs. The loyal toast was duly honoured. In proposing "The Devon and Exeter Gardeners' Association," the Chairman remarked that it was a happy feature that the Society had lost no member from death since its commencement. During the four years of its existence it had done good work. It was an organisation which the gardeners much needed. It promoted good fellowship, and by being brought together they could be mutually helpful to one another. One man was not, as a rule, well acquainted with every branch of horticulture. Many of them were specialists in some branches, and in this way one could be exceedingly helpful to another. He was pleased that during the last session the young members had contributed some interesting papers—a fact in itself which showed that the Society was doing good work. Mr. Andrews, in response, said the Society had done good work among gardeners, and he was sorry to say there were many in the immediate neighbourhood who hesitated to join. Both old and young gardeners could learn a good deal by enrolling themselves. The papers which were read, and the discussions which ensued, had a great educational value. Those relating to fruit culture, in particular, were extremely valuable. By excursions to the principal gardens of the district they had had opportunities of picking up many useful hints. Songs were sung by Messrs. Scott, Meyer, Wylde, Webb, Rossiter, Lansdale, Toby, and others.

— A STRANGE CHRISTMAS POSY.—Mr. Henry Lewis writes from West Ashling, Chichester:—"It may interest many of your readers to know that here the weather has been so unusually mild for the season that I was able to have on my table yesterday twenty-five sorts of sweet-scented flowers, all gathered out of doors, and furnishing good perfume—among them Roses, Carnations, Pinks, Wallflowers, Passion Flowers, Double Stocks, Jasmine, Fuchsias, Sweet Williams, Verbenas, and Lobelias."

— DECEMBER WEATHER AT BROUGHTY FERRY.—The weather of December continued very pleasant up to the morning of the 29th, when we had the first taste of real wintry weather, with a fall of snow which put a stop to all outside work. We had a storm of wind of unusual severity on the 22nd, and another on the 28th. The mean temperature of the month was 38.7°, being 2.6° above the average mean of the last twenty years; and although we often heard remarks on the mildness of the month, it was forgotten that December 1893 was still milder, the mean temperature of which was 39.4°, but it was the last three days of the month which reduced the mean, the maximum thermometer in these days only recording 36°, 35° and 33° respectively, and with the exception of these three days must be considered a record mild December in this district. The rainfall for the month was 1.72 inch, being exactly the average of December for the last ten years. The total rainfall for the year was 29.20 inches, which is about the average of the last twenty years (29.25 inches). I may add that the weather for this month, January, so far, has been of a very wintry nature with frost and snow, with very cold northerly cutting winds. The frost has not been intense considering the season. The hardest record was 13° on Saturday morning last.—J. M. C.

— "SWEET-SCENTED FLOWERS AND FRAGRANT LEAVES."—Under this title Messrs. Sampson, Low, Marston & Co. have produced a very pretty and, we surmise, a popular book with amateurs. In the tone of the binding, in general get-up, and more particularly in the sixteen coloured illustrations, it is a most desirable object for the tables of those who combine æstheticism with a love of flowers. The bulk of the work is taken up with an alphabetical arrangement of fragrant plants under their scientific names. This, we venture to think, is a mistake. Had the scientific names been subordinated to the popular ones the book would probably have found greater favour with the class for which it is intended. Unfortunately, too, there is no index to the popular names. The uninitiated, therefore, in seeking for *Smilax* (e.g.) will not find it except by accidentally lighting upon *Myrsiphyllum asparagoides*, which will be a revelation to them. Unluckily, too, the printer's reader presents it as "*Simlax*," which should be corrected if the work reaches another edition. Notwithstanding, however, the exceptions which we have taken, much remains to be commended. The text elucidating the names, especially those of the most popular flowers, is agreeable and instructive, and should conduce much to popularising the knowledge of horticulture. Mr. Donald McDonald, the author, is to be congratulated on his efforts, for he has produced at once an attractive and a very readable book on a topic which is yearly growing in favour.

— NATIONAL AMATEUR GARDENERS' ASSOCIATION.—The first meeting of the new year took place in the Board Room, Memorial Hall, Farringdon Street, E.C., on Tuesday evening last, the 8th inst., when there was a very satisfactory attendance of members. Mr. T. W. Sanders, F.R.H.S., occupied the chair on this occasion. Mr. H. A. Smith of Lewisham read a paper on the cultivation of hardy annuals. The paper was listened to with considerable interest, and the lecturer concluded with giving a list of the best plants to grow. Many questions were asked, and a good discussion ensued. A vote of thanks was also accorded Mr. Smith for his admirable paper. The exhibition, although not a large one, contained several products of exceptional merit, and in point of numbers, as well as in quality, was a distinct advance on previous years. Fourteen new members were elected, and this should be considered satisfactory, as the Association is now entering on the fifth year of its existence. A vote of condolence with Mrs. Chas. Collins was unanimously carried, and a subscription list was opened to which members were invited to subscribe. Mr. Collins joined the Association at its inception, and had been a regular attendant at the meetings. His gentle and unassuming manner, as well as his gift as a clever horticultural journalist, made him many friends, and his loss will be keenly felt at the meetings of the Association. Mr. D. B. Crane, 4, Woodview Terrace, Archway Road, Highgate, N., is the Hon. Secretary, and will be pleased to forward particulars of what the Association is doing to any inquirer.

THE HERBACEOUS BORDER.

AS winter gives place to spring, and spring to summer, so we must of necessity divert our attention from the beauties of indoor gardening to the more natural and interesting feature of floriculture—namely, outside work. I do not of course wish to infer that we should by any means neglect or ignore the claims of the glass department, but we must not forget the claims and charms of the herbaceous border. The mind dwells with delight in winter on hardy flowers of summer, and some at present haunt the memory.

DELPHINIUMS.—What can be more beautiful than Delphiniums or Larkspurs, with their long stout spikes of bloom towering above all other plants, the colours varying through almost every shade of blue, from the lightest silvery lilac to the deepest indigo. For the back of the border or in the foreground of shrubberies they are about the finest and most showy plants obtainable. If the flower stems are promptly removed as soon as the first display is over successional spikes of bloom will be produced, thereby very materially lengthening the flowering period. Let us then think of obtaining good collections of these stately border flowers.

DICTAMNUS.—The Dictamnus, or Burning Bush, as it is often called, is one of the most interesting and beautiful of perennial border plants. It forms a handsome bush from 2 to 3 feet in height, and nearly as much through, each shoot carrying a long terminal raceme of curious red flowers. At a certain stage of development the flowers are said to exhale a strong balsamic ether, which will ignite at the approach of flame, hence the name Burning Bush. The experiment may easily be tried after dark on a dry, still night. There is a white-flowered variety also.

IRIS.—The numerous species and varieties of Iris now in cultivation comprise a large and most interesting group of hardy herbaceous plants, remarkable for their curiously constructed flowers and immense variety of colour. There are two distinct sections of the Iris, easily distinguished by one having creeping rhizomes, the other being bulbous rooted. The extreme hardiness, ease of culture, and adaptability of the former section to various situations are points greatly in its favour; and there are few hardy plants that are more worthy of recommendation to cultivators; yet I think the bulbous kinds are the more beautiful, and when flowering in clumps at intervals along the herbaceous border few plants can excel them in beauty. Do not forget to plant a good assortment.

PYRETHRUMS.—No words of mine can overpraise these popular border plants. They are especially to be recommended for the adornment of the hardy flower garden, and worthy of extended cultivation. Although the single varieties are mostly in demand, being more light and graceful for decorative purposes in a cut state than the doubles, yet the latter must not be ignored, as they are decidedly effective in the garden.

VARIOUS PLANTS.—The beauty of many lingers in the memory, but I can only briefly refer to a few at present. For instance, there are the majestic Hollyhocks, which in their way have no rivals; Campanulas of sorts, Asters or Michaelmas Daisies, perennial Phloxes, *Lathyrus latifolius*, and its white variety. These, if planted at intervals, have a pleasing effect. *Eryngium amethystinum* and *giganteum* are handsome in foliage as well as in flowers. *Hesperis matronalis* and *H. m. alba*, the purple and white Rocket, are worthy of a place in every collection. *Rudbeckia Newmanni* is one of the finest of our autumnal flowering herbaceous plants, its bright golden-yellow flowers with black discs being most useful for cutting purposes. *Achillea Ptarmica alba plena*, *Aquilegias* of sorts, *Centaureas*, *Hemerocallis* or the Day Lily, and *Lychnis* of sorts should all find a place in the herbaceous border, *L. viscaria rosea plena* being particularly handsome, and lasting a long time in beauty. These are a few flowers to keep in mind by intending planters.—GEO. PARRANT.

HAVING in previous notes given the names of some of the taller growers for the back of the border I will now augment their number, and then follow with plants of dwarfer habit. *Tritoma Uvaria* is very showy in the autumn, but does not like root disturbance; *Ferula glauca* is a conspicuous plant, the stem being singularly glaucous; *Campanula pyramidalis* (the Chimney Campanula) is a grand old plant, the flowers lasting a long time in beauty; this is also useful for pots. The above, with the former list, constitute a goodly number of the taller growers.

We now come to the next line, with plants ranging from 3 to 4 feet high. Of these I content myself with a concise list of the best varieties, merely naming their colours as a guide. *Anemone Honorine Jobert*, or *japonica alba*, white; *Campanula persicifolia alba*, also double white; *Gypsophila paniculata*, fine for cutting, white; *Rudbeckia Newmanni*, yellow; *Dictamnus Fraxinella* (Burning Bush), peculiarly scented, purple and white; *Spiræa aruncus*, white; *Phlox decussata*, with its many hybrids, indispensable, owing to their rich and varied colours; *Oenothera Youngi* (Evening Primrose), yellow; *Lobelia fulgens*, scarlet; *Hemerocallis flava*, yellow; *Dielytra spectabilis* (Lyre-flower) pink, a well-known favourite; *Lychnis chalcedonica*, bright scarlet; *Aquilegias*, most beautiful and delicate tints are to be found amongst the hybrid flowers of this section. Amongst the bulbous plants *Lilium candidum*, white; *Gladioli*, the garden hybrids of which are very numerous and beautiful; *Fritillaria imperialis* (Crown Imperial), well known. I should also mention *Lilium tigrinum* as most brilliant during late summer.—GEO. DYKE.

OXERA PULCHELLA.

A CORRESPONDENT writes seeking information about *Oxera pulchella*, which has been recommended to him as a climber for the warm conservatory. It is a plant but seldom seen, though it was

immense cymes of white flowers usually about Christmas. They are freely produced, both axillary and terminally, on the ripened wood. Therefore, to secure the proper ripening of the wood the plant must be afforded plenty of light; indeed, it cannot have too much, even full exposure to the sun will not injure it. Train it on the glass end of a



FIG. 6.—OXERA PULCHELLA.

exhibited some years ago when we made a sketch of it, and which we reproduce (fig. 6) for displaying its character. Writing anent *O. pulchella*, Mr. F. Ross, the exhibitor of the spray shown, said:—“The *Oxera* is an extremely free-growing shrubby climber, producing

house up a rafter, or along the ridge of the house, say where there is a lantern top, as these are the positions which would suit it best. Our plant, both this and last year, had by far the finest flowers on the glass end of a cool stove, where the temperature during winter is kept at

about 55° to 60°. A fair degree of temperature such as I have mentioned is necessary to flower it, although the plant will live through the winter in ordinary greenhouse temperature; but under such treatment we failed to flower it, and it was not until it was moved to its present position two years ago that anything satisfactory was done with it. It flowered the following year and again this year about the same time—Christmas. It is by no means particular as to soil, but a good friable loam seems to suit it best.

"It is easily propagated in the usual way, either by cuttings or seeds, which, judging from what I have seen of it, are produced rather freely; but cuttings inserted round the edges of a pot in sandy soil and placed in a propagating frame root in a few weeks, and if potted and liberally treated may be expected to flower in about a year, much depending on the time of year at which the cuttings were inserted. As far as I am aware, this is the first and only plant which has flowered in England—possibly in Europe—and is not yet, I believe, in the trade; Sir George Macleay having brought the plant to England when travelling abroad a few years ago."

HOME FOR THE HOLIDAYS.

AMERICAN METHODS.

HOLIDAYS in the home gardening world are perforce of circumstances connected with the work of the festive season not very common, and a trip of some 3000 miles to see the "old folks at home" is less common still. It is perhaps worth recording with a few notes derived from a young gardener who two years since set out for "the West" to find work, dollars, and new ideas in a Boston nursery. He appears to have won a considerable moiety of each, and of the latter I was particularly interested in. This—the working experience—was confined to Roses and Chrysanthemums grown for cut blooms in the Waban Rose Conservatories, Natick, Mass., seventeen miles inland from Boston, U.S.A. About 40,000 Roses are grown in thirty-five houses, varying in length from 100 to 350 feet, and from 18 to 30 feet wide. These houses are heated by steam, and particular attention appears to be given in the matter of temperature, airing, and watering. The principal varieties grown are—Teas, Catherine Mermet, The Bride, and Bridesmaid; Hybrid Teas, Meteor and American Beauty; H.P.'s, Ulrich Brunner and Général Jacqueminot. These are planted out in shallow beds of soil of but a few inches in depth, resting on benches of timber raised from the ground to a convenient height for working operations. Stimulant in the form of bonemeal is liberally supplied, and the whole of the plants are cleared out annually, and new stock reared from cuttings in reserve houses take their place.

Some 12,000 Chrysanthemums are planted out in three large houses about mid-June. These are grown on single stems only for one big bloom. Addition of new varieties is made each season. Cutting for the Boston market, where all the flowers grown here are consigned, commences about October 20th, and finishes the first week of December. Having some vague notions of the tropical heat summer commands in this part of the globe, this question of growing Chrysanthemums planted out under glass is, to say the least, interesting. I was also gratified by some cuttings which my enthusiastic young friend brought with him, accompanied by the compliment that "the boss" who gave them to him said, "Now, I guess you'll give these to some old fogey over there who will not root them till next summer." But of that *nous verrons*. Eugène Dailledouze is amongst those sent, and my visitor said it is superior to Golden Wedding. Forty-five dollars per month is the nursery pay; but it was easy to glean that a good deal of energy and close attention to duty under extremes of climate is required in exchange. Still, my young friend, when asked if he would care to remain on this side, said, "Wal, I guess not; it is rather too slow." Hence he returns to "the West," and I think he might do worse.—E. K., *Dublin*.

DIFFICULTIES IN EXHIBITING—PROPOSED COURT OF APPEAL.

I AM surprised that nobody has responded to the kind invitation you gave in your issue of 13th December to discuss the above subject in your columns. Perhaps "everybody has been waiting for somebody else to begin." I have advocated for some years the appointment of appeal judges for our agricultural, horticultural, and other shows as the only means of putting an end to disputes and closing the mouths of inveterate grumblers who never get fair play (?)

There are many people in the world who think it a very great honour to be appointed to adjudicate at a show of any kind, and will accept an appointment and the responsibility connected therewith although they know little or nothing about the subjects they have to judge. There are others again, who are themselves keen competitors, that are very anxious to be taken out as judges, not so much for the empty honour of the post as to be in a position to help those who will help them. If the work of these gentlemen was subject to be reversed by appeal judges the first set would not in many cases accept the responsibility, and the second would be very chary of deviating from the straight line lest an aggrieved party might appeal, with result of their decisions being reversed and their shortcomings exposed.

To work the appeal court without unduly prolonging the misery it

would be necessary to have the appeal judges in a room or tent convenient to the building or marquee in which the show was held, and to allow the competitors to remain in the show during the judging ready to lodge their appeals as soon as each class was judged, or if there was not room in the place where the show was held to call in the competitors in each class as soon as the judges gave their decision. To prevent wholesale appeals it would be necessary, as proposed by Mr. Crabbe, to require each appellant to make a deposit—say the value of the prize claimed if it did not exceed half a guinea; I think any higher sum would be likely to deter many competitors who really had a grievance from seeking an appeal. If an appeal was successful the appellant would get back his deposit, and of course get the prize claimed, and if not the deposit would be forfeited and go to the funds of the society.

The greatest difficulty in working the appeal system would be in the event of the judges awarding an exhibit the first prize which should not have been in the running at all. For instance, if the appeal system had been in operation at the Royal Caledonian Horticultural Society's show of September last, where the judging of the Fancy Pansies took everybody by surprise, the first prize being awarded to a tray that I may safely say none of the competitors, not even the owner of it, ever dreamt of it getting a prize. In that case there certainly would have been two or three appellants. Say that three had appealed against the decision of the judges, and all claimed the first prize, they could not all have been successful—that is, they could not all have got the first prize, but if the appeal court adjudged the exhibits of all the three appellants better than the one that was awarded the first prize by the first set of judges, and awarded them the first, second, and third prizes, all three should be equally entitled to have their deposits returned.

Some people affect to believe that there is no such thing as favouritism or partiality with judges, but it is one of the worst features of our show system. The good grower will not often succumb to the cadger, and if he does at a time, he often does not know whether the "stuff" that beat his was honestly shown or not, and it is said that what a man does not know does him no harm, but how shocked he is when he suffers an unmerited defeat at the hands of dishonest or incompetent judges, and has no remedy.—C. K., *Gargannock*.

[This letter opens out a new view of the subject that was introduced, and a very wide one, as it appears to suggest a reserve set of judges for every show. Would they not all want to be in the appeal reserve?]

MR. BLACKMORE'S CRITICS.

DOES not "Landowner" (page 586) with all other of Mr. R. D. Blackmore's critics, make the mistake of regarding that eminent writer's fruit references too seriously? It seems to be overlooked that Mr. Blackmore owes his high reputation, not to fruit at all, but to books; that he is a distinguished romancist, and as such it is difficult for him to avoid investing, what to most persons may seem to be a very prosaic theme, with a certain amount of romance. Very much of allowance has to be made for that feature in Mr. Blackmore's fruit criticisms; it is, indeed, a case where the proverbial grain of salt looms large. Now, so far from being regarded as a practical grower of fruit for sale, Mr. Blackmore is really a fruit experimentalist, and he has chiefly devoted himself to Pears, which seem to be pomologically—I do not say profitably—his favourite fruit; and there are few varieties known to commerce, especially of French sorts, that he has not grown and tested at Teddington.

It is obvious that work of this kind cannot be undertaken profitably, not even by a nurseryman. It is all speculative and experimental, and its reward is found in the great fund of information it furnishes, whilst to an earnest pomologist experimental work of this kind is ever attended with profound interest and pleasure. No doubt Mr. Blackmore has found, as others have found, that two-thirds of the Pears he has tested have been worthless, and in that respect alone the Teddington trials have perhaps been as useful for horticulture as they may have been, in another sense, profitable to some traders. Let it be said that neither in soil nor situation is Teddington an ideal place for hardy Pear culture. It is flat, not far from the Thames, and on the stiff London clay, and all experience has served to show that these are far from being the best of cultural conditions.

The Thames Valley soil, though growing trees very well up to a certain age, is very apt to produce weak sappy wood, engendering canker and non-fertile buds later, hence the older Pear trees become the less profitable they are. Mr. Blackmore has most of his trees somewhat densely planted, much more so than is ordinarily the case, especially where under fruits are grown in conjunction. Many of the trees have run up freely to a great height, and it is obvious that unless the ground be more abundantly fed the supply of food must be rapidly exhausted. Practically the trees largely may be said to be free pyramids run wild, for they have that aspect, and whilst sometimes cropping heavily, it is doubtful whether there are not far too many varieties, and probably much of the fruit far from being first-class. I cannot answer, nor am I entitled to answer, the queries which a "Landowner" so practically puts. He is not content to be put off with generalities. No doubt a visit to the Pear gardens, I think some 7 acres in extent, would furnish the best information and test how far, as a certain peer remarked the other day, Mr. Blackmore was entitled to the dignity of being the largest fruit grower in the kingdom. For that silly remark, however, a peer and not Mr. Blackmore is responsible.

Let it be clearly understood that hardy fruit culture as conducted at Teddington, bears no more relation to fruit culture on practical market lines than does a picture shop to the National Gallery. No

greater failure can well be looked for than when persons, clever in other directions, embark capital in a trade for which they have only a faddish fancy and no practical knowledge. Sir Walter Scott found that out to his cost, and he was, or is not, the only eminent romancist who has had similar experience.—A. D.



"THE ROSARIAN'S YEAR BOOK."

WE have to acknowledge "The Rosarian's Year Book for 1895," which, as most Rose growers know, is ably edited by the Rev. H. H. D'Ombraim. The frontispiece is a life-like portrait of Mr. Edward Mawley, Mr. D'Ombraim's co-secretary. The body of the work contains articles on the following subjects by the authors mentioned, "Does Exhibiting for Money tend to Demoralisation?" Mr. C. J. Grahame; "The Rose and the National Rose Society in 1894," the Editor; "Neglected Roses," Mr. A. Piper; "Hybrid Tea Roses," the Editor; "An Up-to-Date Rose Garden," Mr. Geo. Paul; "The Book of the Rose; a Review," Mr. C. J. Grahame; "The Hardiness of Tea Roses," Mr. D. T. Fish, N.R.S., F.R.H.S.; "Rose Culture in the North Midlands," Mr. H. V. Machin; "The Rose Weather of 1894," Mr. E. Mawley, F.R.M.S. The work is published by Messrs. Bemrose & Sons, Ltd., 23, Old Bailey, and remains at the same price as before, 1s.

NATIONAL ROSE SOCIETY.

IT would have been better for Mr. D'Ombraim's own standing with the Society than from any idea of gratifying me, as "D., Deal," says (page 13), that he should have replied and explained his position in regard to his attitude at the annual meeting, more especially in regard to his opposition to Mr. Machin on the plea of no room, and his immediate *volte-face* in favour of Mr. Foster-Melliar, and also his extraordinary action to Mr. Jeans and the Portsmouth Town Council.

It is unusual in a public discussion to refer to a private letter, and it is considered to be in very questionable taste to do so, but "D., Deal," refers to one I wrote to him, not to "some of us." This letter he distorts, as I said Mr. D'Ombraim had by his action put some nails into the N.R.S. coffin. My letter in your issue of the 27th December, which Mr. D'Ombraim thinks refers to what I wrote to him in regard to "driving a big nail into the coffin of the N.R.S.," has nothing to do with anything as yet published. It refers to quite another matter, which for the present I withhold, but am ready to bring forward at any moment.

Our senior Secretary, with a complacency which is charming, finishes his letter by saying, "My motives were simply what I thought best for the Society." That is—first, he considers it best for the Society that he should say at the annual meeting that the V.-P. list was long enough already, and for that reason oppose one gentleman of high social standing and a leading rosarian, and within five minutes support the claims of another rosarian for the same position of V.-P. Secondly, that it is "best for the Society" to hold a show at Reading in 1896 within eighteen miles of Windsor, where the Southern Show was held in 1894, when an offer had been received from the Town Council of our leading naval seaport to hold the meeting in their town.

Mr. D'Ombraim does not vouchsafe to Mr. Jeans the courtesy of one word of apology or explanation, and his apologist, Mr. Strange, fairly gives our senior Secretary away.

Both Mr. D'Ombraim, who was in communication with Mr. Jeans and Mr. Mawley, who was in correspondence with Mr. Spittal, knew as well as your readers, last October that the Portsmouth Town Council had passed the resolution to invite the N.R.S. to Portsmouth in 1896. Mr. Strange with a simplicity of mind which does him credit, while it is amusing, lets the cat out of the bag, as he says, "Immediately after the November Committee I had an intimation that if Reading had renewed the invitation for 1896 it would probably be favourably considered." In the cause of good faith and in the real interests of the Society I ask our members to again read Mr. Jeans' letter to you in the Journal of the 27th December, page 585. I think a more remarkable misuse of authority than this invitation by the officials to the Reading rosarians has never been perpetrated, and as a man of thirty-three years business experience I can say with the absolute conviction that I am right, that such a proceeding would never be permitted in a public company.

I shall be much surprised if the gentlemen more immediately interested in the lamentable occurrence at the recent annual meeting and prior thereto, are willing to ignore the indignity placed upon them. In any case the letter of Mr. Strange leaves the matter now fully exposed to the light of day, and the fact of Mr. D'Ombraim specially attending the Reading Committee shows what he had made up his mind to do, although he told Mr. Jeans to stay away from the annual meeting, and soothed him with the impression that his interests were safeguarded.—CHARLES J. GRAHAME.

N.R.S. TROPHY CLASSES.

IN the early autumn of last year there was a good deal of correspondence in your columns on the above subject with a view to a possible re-arrangement of certain details. But one phase of the subject was

not touched, and as it is a matter in which an improved arrangement might quickly and easily be made I should be glad to see some expression of opinion on it. The challenge trophies are held for one year only, and then, unless the exhibitor is strong enough and fortunate enough to repeat his success, they pass into other hands, leaving no tangible memento of the victory once gained. This certainly seems hard, and I know some of the winners feel it very much. Writing to me some time ago one gentleman who has twice won the amateur trophy said, "During the last twenty years I have had fifteen challenge cups in my possession, and yet, now that I have partially given up exhibiting, I have nothing whatever to show for my pains."

With a view, therefore, to avoiding this state of affairs, and providing permanent satisfaction to the winners in these important classes, I should like to suggest that in addition to the challenge trophies to be held for the year, the gold medal of the Society, to remain the property of the winner, should be given as the first prize in each of them. If I am told that these medals cost £2 apiece, and that five of them (three at the C. Palace show and two at the Northern) would mean too great an addition to the prize fund, then I would say that while the amount of the second, third, and fourth prizes remains the same, the money for the first prize might be reduced by £1, and thus the expense of the medals be jointly borne by the funds and by the trophy winners.

I would not omit the trade growers from the proposed arrangement, because as a matter of business it is of even more importance to them than to amateurs. Our good old friend, Mr. B. R. Cant, has secured the trade trophy six times, and he, rightly enough, makes the most of this fact; but if, when visitors call on him, he could open a neat little case and say, "This is my collection of N.R.S. medals awarded to me when I won the challenge trophy," it would be of far more value to him than just a line in an advertisement.

I feel somewhat diffident about broaching this subject, because I am never likely to be an aspirant to championship honours; but if other exhibitors, and especially those more immediately concerned, think favourably of the suggestion and will give us their views on the matter, I think it might be brought before the Committee with a fair prospect of being adopted in this year's schedule.—J. B.

[The suggestion appears worthy of consideration.]

REGULATION 13.

MR. GRACE does not clear up the mysteries of his first letter in his second one, but he "gives himself away" as freely as before. He tells us now that he has never exhibited under false colours, but his first letter shows that he at least sympathises with those who do, for he says (page 536), "To enforce it (Mr. Lindsell's resolution) means the exclusion of scores of ardent amateurs," and I cannot see how the enforcing the regulation would exclude them, unless they wished to show contrary to its provisions. What does he call this sort of thing—showing in amateur classes under false pretences and contrary to the regulations, and trusting, I suppose, that no one will have the moral courage to denounce it? That he himself is not wanting in courage is plain, for I should not have thought it possible that anyone would dare to write in defence of such a thing, and complain of its being found fault with. I had no idea that there were any provable cases of infraction of the rule, but he says he knows it is widely set at naught. I will not be behind him in moral courage, and will say openly what I call it—dishonesty. I am quite sure the Society has never meant that this regulation should be a dead letter, and I will do all in my power to enforce it.

Mr. Grace says (page 14), "Doubtless the rule was originally framed as a protection for the small grower and in order to prevent large growers from sweeping the board." Certainly not. What possible connection is there between the two subjects? It was obviously framed for the definition of an amateur as opposed to a professional. Why, it is one of the most important regulations in the list. It is, and always has been, the most burning and difficult question in any amateur association, and every such society which has had to deal with it (as, for instance, the Amateur Athletic Association and the Amateur Rowing Association) has met the difficulty successfully only by making the line between amateur and professional most hard and strict, and enforcing actual punishment for every infraction of the rules.

A little further on (page 14), it appears that Mr. Grace calls private gardeners "professionals." Here again he is in conflict with regulation 13. Amateurs are those who do not sell. If they do sell they are, for exhibition purposes, not amateurs but professionals. There does, however, for a moment appear a glimmer of reason in the complaint that poor amateurs, who have no assistance, have to contend against trained and taught gardeners backed by wealth and plenty of help; but he once more gives his own cause away by saying (page 14), "the true amateur is not afraid of meeting professional skill but professional numbers," though in the same paragraph he had already alluded to "the new and most sensible regulations for dividing exhibitors into classes according to number of plants grown by them," which was expressly framed to prevent the small man being overborne by numbers.

Mr. Grace so well displays the weakness of his own case that it seems hardly necessary to point out that the experienced amateur is by no means afraid of private gardeners, however large their establishments may be, knowing that, with very few exceptions indeed, they have so much other work to do as to be unable to beat the amateur who makes

a specialty of the Rose. Such amateurs who have no gardeners, as, for instance, Mr. Pemberton or Mr. Page Roberts, Mr. Grace would, I suppose, have no objection to contend with; but he would find them even more doughty opponents than what he calls "professional" gardeners.

In fact, Mr. Grace's letters, as I said last week, have given far clearer proof of the necessity of vigorous action being taken in the matter of regulation 13 than Mr. Lindell's resolution itself did, for they have shown, what was unknown to me, and surely to others also, that there really are some who set the laws at defiance, and others who wish to do so. I consider this the most important point in connection with the welfare of the Society that has come before it during the dozen years or more that I have been a member; and I heartily hope that everyone who has the common sense to see that no society can afford to let its own regulations be thus set at naught, will unite to follow up the spirit of regulation 13 by bringing every such provable act under the notice of the Committee.—W. R. RAILLEM.

THE N.R.S. AND PORTSMOUTH.

It is unpleasant to be drawn against one's will into a public controversy, but the letters which have appeared in your columns seem to leave me no option; and I hope the N.R.S. will understand that I meant nothing but good to the Society in the part I took. Mr. Jeans of Shorwell, the Secretary of the Isle of Wight Rose Society, has already pointed out the advantages which Portsmouth offers as a place for a great Rose show. It is a town of 170,000 inhabitants, with a large proportion of villa residents. It is convenient for almost all the southern Rose growers. The show might be held early in the season, so as not to come into competition with any other. There was no need for "strenuous exertion" to induce the authorities to entertain the scheme; as a matter of fact, one day in last September I had a few minutes' conversation with the Chairman of the Portsmouth Parks Committee, which has the charge of such exhibitions. He entered into the scheme heartily.

The Parks Committee agreed to take the matter up, and were anxious to do everything to make the show the great success which it promised to be. They said there would be no difficulty as to a guarantee. They have the power to close the public parks for such shows, and they offered the park close to the town railway station, or, in case of bad weather, the great Drill Hall, which is well lighted with windows in the roof, and is supplied with tables and all things necessary. They made a point of the Isle of Wight Rose Society joining them, and holding our annual exhibition as part of the Portsmouth Show.

The Mayor was away from home in September, but in October the matter was brought before the Town Council, and the resolution to invite the N.R.S. for 1896 was passed. There was a mistake on the part of the minute clerk which delayed the forwarding of the formal notice of the invitation for some weeks. But on October 18th I sent Mr. Mawley a copy of the newspaper report of the resolution, with a letter explaining the circumstances and the advantages which Portsmouth offered. I had a courteous letter from Mr. Mawley in return. We, in the island, thought that all was settled, and that not only the show would be conspicuously successful, but that the N.R.S. would gain many fresh members.

Now, in your last issue (page 13), I read in a letter of Mr. J. T. Strange, Secretary of the Reading Horticultural Society, "Immediately after the November Committee meeting I had an intimation that if Reading renewed the invitation for 1896 it would probably be favourably considered. An invitation was sent accordingly."

Your readers will understand that the N.R.S. Secretaries had in their hands the printed report of the Portsmouth resolution, and were acquainted with all which the Town Council offered long before the November meeting, and long before they invited Reading to send in an application. They may say I had no position in the matter. I acted as a member of the Isle of Wight Committee. Our Society was deeply interested, and the show would have been our show as well as that of Portsmouth. If the Secretaries had not determined to reject the Portsmouth invitation they would have communicated with the Chairman of the Parks Committee, whose name and address they had.—JOHN SPITTAL, *Havenstreet, Ryde.*

WHEN a well-known bishop, at a public dinner, received the contents of a hot soup plate down his back from a clumsy waiter, he is said to have exclaimed, "Is there any layman here who will express my feelings?" Portsmouth seems to have taken an opposite course, and a shrill voice of complaint proceeds rather from a clerical source. The Isle of Wight takes the adjacent island of Great Britain under its protection.

Mr. Jeans appears, like myself, to be a very old acquaintance of Mr. D'Ombra. I almost wonder that like myself he does not view with surprise and strong disapproval the strange tone of discourtesy now from time to time adopted and used towards both of our Honorary Secretaries. "Disgust," "outrageous treatment," "it is difficult to find the right word," evidently very difficult. These expressions, I submit, are not necessary to calm discussion, and hardly likely to conduce to it. Mr. D'Ombra and Mr. Mawley have slowly and surely built up the N.R.S. to its present commanding height, and common courtesy, to say nothing else, at least demands that they are given credit for justice and straightforward dealing.

With regard to the question in point, I think it lies in a nutshell.

The whole of Mr. Jeans' contention falls to the ground if Portsmouth fails to show "priority of application." What are the facts of the case? Mr. Strange shows, on page 13, that Reading invited in 1893, Windsor also invited and gained the day, the Reading invitation standing over. Mr. Strange repeated it on the first opportunity, and it has been virtually accepted. Portsmouth invited in 1894; if it has to wait a year also, what is there to complain of? It was, no doubt, a great misfortune, from his own point of view, that Mr. Grahame "was unable to be at the meeting of the 13th," but I hardly see, if he had been, how he could have altered these facts.—ALAN CHEALES.

MESSRS. JEANS and Grahame have poured out their wrath on the executive of the N.R.S. for what they have done, or have not done, in the above connection, but there are just three facts to which I should like to call their attention and that of any of your readers (if there are any) who may be led to suppose that the aforesaid executive have been very remiss in their proceedings.

The first is, that although we have heard and read a great deal in the past two years or so as to what Smith has said to Robinson, and what Jones has written to Brown on the subject, yet, up to the present hour, no official communication whatever from the Portsmouth authorities has reached the N.R.S. Committee.

The second is, that Portsmouth is a three-days show, while one of the regulations of the N.R.S. is to the effect that no show held in connection with it shall extend beyond one day. Here again we have had many *ex parte* statements as to what the Portsmouth authorities would do, but again nothing official has ever come before the Committee.

The third is, that Reading (so far from being invited to apply, as your correspondents suggest), applied for the show to be held there in 1894, renewed their application for 1895, and repeated it for 1896.

To sum up the position, then, we have on the one hand Reading so much alive and earnest in the matter that they make definite official application three times over; and on the other hand, we have Portsmouth so careless and indifferent, that while they appear to have talked about it for two years, they have never yet put themselves in official communication with the N.R.S. Under these circumstances is it in any degree surprising or reprehensible that the Committee should have chosen the former? Nay, more, could they possibly have accepted an invitation which has never been given?

Both your correspondents labour under the disadvantage of not having been present at the annual meeting, and they are, therefore, betrayed into the error of writing dogmatically on matters of which they know nothing except from hearsay evidence. But Mr. Grahame excels himself in this respect, for he devotes nearly half his letter to an elaborate attack on what he imagines (his own words are "I suppose") Mr. D'Ombra to have said about the railway communication with Portsmouth. He will perhaps be surprised to hear that neither Mr. D'Ombra nor anyone else at the annual meeting said a word on this subject one way or the other! All that was done was to report that the Committee had received invitations to hold the Southern show at Reading and the Northern at Ulverston in 1896, and had provisionally accepted them; and then it was proposed and seconded that these arrangements be confirmed, and this was carried without discussion. The terms "imprudent assertion," "untrue statement," and "*fiasco*," which Mr. Grahame bestows on what Mr. D'Ombra did not say at the annual meeting, therefore apply absolutely and only to his own epistle.—J. B.

[We think it will soon be time that this discussion ended, and if the Secretaries of the N.R.S. state that no official application has been made by the Portsmouth authorities for the show in question to be held in the busy seaport town that will end it. Obviously the above letter cannot be regarded as official. We have many times intimated that needlessly strong language or taunting allusions, by whomsoever used or employed, do not strengthen a case, but weaken it in public estimation.]

GLEANINGS.

MR. FOSTER-MELLIAR has done exactly what I wished. I invited corrections where they might be needed; at the same time I do not see why the "old coat" had to be taken off. No mention was made of Mr. Raillem, and now I note for the first time that "Raillem" is just "Melliar" the other way about. Was the famous rosarian looking for an opportunity of declaring himself? The time is opportune. I have just bought Mr. Foster-Melliar's beautiful and useful "Book of the Rose," and it will not be prized the less now that I see it was written by "W. R. Raillem."

But to the correction (page 14). It is accepted with thanks. I was informed that "everybody appeared to be talking at once, and it was not easy to catch exact words." Perhaps someone else may have said, in the way of pleasantry, "just what he wanted" to raise the laugh which I am to'd everyone might be expected to hear. Mr. Foster Melliar has taken seriously what was not so intended. But is it not a fact that many a man has often said in the way of banter the very opposite of his desire, his hearers well knowing this at the time? "W. R. Raillem" is not always as dry as dust, and it seems evident he said something, which he describes as "no doubt poorly and insufficiently expressed," or the words "sorry I spoke" would be meaningless. However, my blundering jocularly is withdrawn, and there ends the matter, no one being a penny the worse.

Mr. Foster Melliar (with his coat off) sets me a puzzle. I am invited to "comment on what I have heard with my own ears;" yet this "hear-say business will be unsatisfactory." Why then the invitation? I certainly did hear with "my own ears" from the mouth of my friend who was at the meeting, and I know he would not willingly mislead. I could not hear with my "own ears," long as they are, the original speakers, because that "waiter at the Windsor" caused the date of the meeting to be changed. What more natural than that I should ask one who was present to give me a narrative of the proceedings? Has not Mr. Foster Melliar ever made inquiries of a similar nature when he was interested in certain proceedings at meetings which he was unable to attend? If not, his bump of inquisitiveness is not so largely developed as is that of humanity generally.

But seriously, if any gentleman did not want a position that he was entitled to fill he would not be bound to accept it (except that of High Sheriff), and if he did want it, as he might very properly and reasonably do, without being a "cad," would it be otherwise than frank and honourable on his part to say so? Is it not commendable on the part of a man, no matter in what worthy connection, to aspire to a higher status? I think so, decidedly. If I were a curate, and wanted to be a vicar, I should see no harm whatever in letting my desire be known; or if I wanted to be an M.P. I should not mood silently over my ambition if I had a chance of being elected.

I have had the pleasure of attending I do not know how many annual meetings of the N.R.S., and the proceedings were to me enjoyable. I might have even enjoyed the last, though I am told it was a "bewildering affair" at times, and that something like a spirit of cliquism appeared to be in the air. This is a pity. It is not the way to strengthen a Society, and there should be no animosities "under the Rose," whatever little differences may now and then arise on lines of policy.

As my comments on what I "hear with my own ears" will as "hear-say business be unsatisfactory," I fear I must forego the pleasure of making Mr. Foster Melliar "happy" by accepting his invitation, and it will, I think, be better in future, if I venture to comment again, only to do so on what I see with my own eyes in print. I am bound, however, to consider, and not without regret, that there seems to be a certain amount of danger in tilting with men who are under the gentle influence of the Rose.—GLENER.

RANUNCULUS PARNASSIFOLIUS.

THIS is a charming and beautiful alpine (fig. 7) very dwarf in habit, with deep green radical leaves and comparatively large white flowers borne on bold peduncles. It is a native of the Swiss and Carinthian Alps and the Pyrenean mountains, and though always scarce in England, has been long known. Messrs. Kennedy & Lee introduced it as early as 1769, but there is no record that they succeeded in flowering it. Mr. William Curtis was more fortunate in 1797, as recorded in the "Botanical Magazine" of October 1797. He received roots of this and several other rare and curious plants from M. Neckar de Saussure in 1796, and obtained blooms the following June from which his characteristic figure was taken. He grew it in a small pot of loam and bog earth. Mr. Donn of Cambridge grew the plant in 1818. Messrs. Loddiges found it prosper and multiply abundantly in sandy loam without any winter protection, giving it abundance of water in the summer, rearing the young plants both from the ripened achenes and by division of the roots.

THE FIRST NUMBER OF THE NEW YEAR.

I DO not know how it is that the first number of the *Journal of Horticulture* for the new year appears of more than usual interest. Whether it is that its readers and writers are specially addressed, or whether the turning over of a new leaf has aught to do with it. Anyway, it has been so to me in years that have come and gone, and this year I venture to say that many who have ere this scanned its pages cannot fail to share in the feeling. From first to last it is pregnant with matter, much of which engenders thoughts difficult to express in words. It is gratifying to find in the leader the honoured pen tenderly touching on the past, the present, and the future. This panegyric of the dead year breathes a spirit of forgiveness for its faults that few of us workers are generous enough to accord to it. Whatever divergence of opinion its doubtful character gives rise to, but one wish can prevail amongst those who read it—viz., that this year may deserve more compliments, and that its character, when revealed in the fulness of time, may, too, be summed up and signed by "D., Deal."

In the leader one is prepared for the brief biography of the bright young life foreshortened on the path of duty. Simple and eloquent is this sketch of a gentle life (page 5) so early closed. Does not the final paragraph of it, in which he anticipates his last resting place, convey the feeling that he was—though cheerfully fighting the battle of life—conscious that the summons from it might be, as it was, sudden? So it

appears to me, hence in those posthumous notes which follow a halo of interest and solemnity is thrown over them, apart from their intrinsic value. For "True and fervent are the prayers that breathe forth from the lips that fade with coming death." Farewell, the gentle pen!—"A long farewell!"

Amongst the pens contributing to this unusually interesting number, it is pleasing to note a gathering so fairly representative over the well known names or well known initials. Amongst those I miss is the able one of "Y. B. A. Z." Let us hope that it is still as vigorous, e'en though these remarks should bring down a long threatened chastisement, for the Roses still bristle with thorns, and promise some friendly skirmishing to come, but by all means let it be "friendly," not acrimonious.—E. K.

FEEDING PEARS.

No fruit responds so readily to good treatment as Pears, and where old varieties seem to be running out, a new lease of life is given to them



FIG. 7.—RANUNCULUS PARNASSIFOLIUS.

by applying ground bones and potash. Without doubt these are the two essential constituents of the soil that the Pear trees exhaust, and when they can no longer draw them from their surroundings they refuse to produce saleable fruits. After many years of experience I can safely say that all of the Pear trees of an old orchard can be revived almost beyond recognition by the annual application of potash and ground bones.

The process I have found the most serviceable is to apply about 400 lbs. of muriate of potash with 800 lbs. of ground bone per acre each year. One-half of this mixture is applied in the autumn and the other half in the spring. Crimson Clover seed is sown with the dressing in order to give the necessary nitrogen. This repeated several years in succession brings the orchard up to a condition where excellent crops of Pears can be depended on every season.

Lately many of our standard Pears have been degenerating, and even on good soil they fail to produce the paying crops that they should. The fruits are small, tasteless, and apt to be knotty and poor generally. Our autumn fruits are usually poor and insipid, and if better Pears could be produced at this time of the year there would be a better general demand. Autumn and winter Pears are susceptible of higher and more delicious flavours if we only give them the right cultivation and attention. The comparative difference between the fruits of the same variety of Pears taken from two orchards is sufficient to convince one of the truth of this remark. Not a few are so poor that one can hardly believe

that they came from the same stock as the other delicious specimens plucked from trees that have been manured for several years. Herein lies the difference.

It is a crying need of the time that orchardists should get out of the old ruts and educate the public up to the use of better fruits. In this way the consumption will increase. We can only do this by abandoning the old idea that Apple, Pear and other orchard trees will take care of themselves. They need cultivation and close attention just as truly as do the vegetables, grains or other farm products. Fruit-growing requires as much scientific study as grain-growing or cattle-breeding, and the sooner this is generally recognised the better it will be for this industry.—S. W. CHAMBERS (in "American Cultivator.")

LIVERPOOL NOTES.

THE CORRIDOR AT CLEVELEY—A PLEASING COMBINATION.

IN noting the Chrysanthemums some time ago I mentioned that they were arranged in the corridor—about 700 plants, admirably grown by Mr. Cromwell. A beautiful combination was presented by mixing *Salvia splendens* and the charming single white Chrysanthemum Miss Mary Anderson. The *Salvias* are propagated early in the season, afterwards receiving treatment almost identical with the Chrysanthemums. This useful old winter-flowering plant, with its glowing scarlet spikes, as seen growing at Cleveley, asserts its decorative value in a way which cannot be mistaken.

CYCLAMENS AND GESNERAS AT AIGBURTH NURSERY.

However much I felt inclined to speak in glowing terms of the successful way in which Cyclamens are cultivated by R. P. Ker and Sons, I should still fail to describe their full beauty as autumn and winter-flowering plants. Houses and frames are similarly occupied with plants sturdy in foliage and strong in spike, until many thousands are reached, in pots from 4-inch to 7-inch, all denoting the fine strain which visitors are wont to see at our leading shows. Already there are numerous scented varieties being carefully looked after, the odour being almost similar to the *Daphne indica*. I cannot pretend to deal with Cyclamen culture here, but the seed is sown in pans in August, using a light soil. When the seedlings are ready to handle they are transferred to thumb pots, the soil containing a fair amount of sand. A little warmth with careful watering constitutes the treatment through the winter, early spring seeing them shifted into pots of various sizes. At the present there are many thousands of healthy vigorous plants in small pots, but nothing in the nature of coddling is resorted to.

Gesneras were in fine condition. Good culture had been the rule, consequently the velvety leaves—some self-coloured, others beautifully marked—showed the spikes of flower to advantage. Could they be seen oftener in such condition, with every leaf perfect, they might yet be held in higher estimation by many plant lovers. A variety almost lost to cultivation was very pretty—*G. chromatella*, with elegant spikes, the flowers being rich yellow in colour, which told to great advantage against the scarlet-orange shades of other varieties.—R. P. R.

HETHERLEE HOUSE,

THE Monmouthshire seat of W. S. Ogden, Esq., is situated about two miles east of the town of Newport. The mansion, a spacious and substantial building, with a noble appearance, commands fine scenery as far as the eye can perceive towards the Bristol Channel.

In viewing the flower garden we notice at a distance some fine Wellingtonias, Cedars, Conifers of kinds, also fine specimens of shrubs, which form an effective foil to the flowers when in beauty. From the carriage entrance to the mansion a flight of steps leads down to a most artistic pleasure garden, kept in the best style. Very pleasing are the rockeries well filled with suitable plants in great variety, and on the grass are flower beds mingled with specimen Conifers and choice shrubs, which appear to receive great attention.

The conservatory, west of the mansion, is furnished with a good collection of plants and Ferns, with a few baskets of Orchids in suitable places along the centre of the house, and on each side are tasteful rockeries, well furnished with Ferns. From this we pass to another large flower garden containing large beds and herbaceous borders, surrounded with shrubbery borders and specimen trees.

Another handsome flight of steps leads to the range of glass, ornamental vases here and there with beautiful flower borders form a beautiful frontage to this magnificent range of glass. The Peach house is 80 feet long, 15 wide, and 18 high, the trellis commencing about 2 feet from the front, curves to about the centre of the roof. The house, being a three-quarter span, is covered with healthy trees and produces excellent crops of fruit. Along the centre of this house is a bed planted with Camellias, which are full of buds, set among dark green foliage, and on the side stages are Primulas admirably grown in 5-inch pots.

The fernery, which is well stocked, contains some huge plants of *Adiantum farleyense* and *A. cuneatum*, the sides being covered with cork and rockwork. The stove comprises a grand collection of Palms, Ericas, Crotons, Ferns, and flowering plants. A large number of Orchids of various kinds also show that they receive good cultural attention. The vinery is a long lean-to, planted with Black Hamburgs, Black Alicante, Gros Colman, and Muscat of Alexandria, the crops and quality of fruit reaching a high standard of excellence, and the wood beautifully

ripened for similarly fine fruit another year. There is a very large intermediate house, which at the time of my visit contained a grand collection of Chrysanthemums.

The kitchen garden is well stocked with vegetables and fruit trees, the espaliers around the walks and the wall trees all affording evidence of cultural skill. Mr. Ogden evidently takes the greatest interest in his magnificent garden; and, as in the past we shall hope in the future, to have the privilege to see its produce win honours at our shows. Mr. Ogden is to be congratulated in securing in the open class at Maindee Chrysanthemum show first prizes for trained and for untrained plants against such strong competitors as Mr. Steadman and Mr. Giddings. The Primulas from Hetherlee, which took first and second honours, were grand plants in 5-inch pots, and one mass of bloom. Mr. Prosser, who has had charge of these gardens for the last four years, is a man of unquestionable ability, and he made the quick march round very pleasant to—EXHIBITOR.



HARDY FRUIT GARDEN.

Pruning and Manuring Raspberries.—All the pruning which should be necessary now to Raspberry quarters consists in thinning out the canes to not more than half a dozen to one stool, leaving the vigorous and stouter. Tie them securely to the central stake, or if grown in espalier rows trained to wood or wire dispose them equally over the trellis. The tips may then be taken off to the height of the stakes or trellis, the wood in strong plants being usually ripe and hard to that height, 4 to 5 feet in most cases. Some prefer to have the plants fruiting from the base upwards. In that case the canes must be shortened at various lengths. Cut off the superfluous wood just above a bud and in a short slanting direction, so that the cut is scarcely seen. Long conspicuous cuts are unworkmanlike, and the pith left eventually dies back, leaving an unsightly snag.

Raspberries are usually furnished with abundance of feeding fibres or rootlets near the surface. It is unwise to fork or dig among these; therefore, pick out any strong weeds which may have established themselves, and then spread a layer of rich manure over the soil. The central space between the rows when not occupied with roots should be lightly forked and some manure buried; but if the rows are close this may not be possible without destroying the fibres. In favourable weather liquid manure can also be applied, which will furnish the soil with increased food for appropriation in the summer.

Strawberry Beds.—On light open soils a good dressing of manure may be spread between the plants, first applying a dusting of soot round the crowns, which will help to destroy slugs as well as invigorate the growth when a move is made in the spring, a further stimulant then being applied in the form of nitrate of soda, 1 oz. to the square yard. On cold, heavy soil, if a mulching of manure was not given early in the autumn, it will be well to defer it until the end of February or later, but soot can be applied at any time. Young vigorous plants in rich soil will need no manure at present. When the surface soil is dry a Dutch hoe may be run lightly through it with beneficial results, not going too closely round the plants.

Manuring Fruit Trees.—Old fruit trees need the most assistance from manurial applications. Of chemical manures slow decomposing kinds are best applied in the autumn and winter. A mixture of bone-meal and kainit may be spread over the roots at the rate of 3 ozs. to the square yard, lightly pointing the surface first to admit of it being washed in equally. Good farmyard manure partly decomposed and laid under the spread of the branches 3 inches thick soon has its virtues washed into the soil. It also naturally attracts the roots to the surface. Fruit trees ought not to be too freely manured before they begin to bear, therefore young trees that are growing vigorously in good soil should not at present be further stimulated at the roots. For such trees a mulching in the summer suffices, this conserving the moisture in the surface soil and keeping the roots from descending too low. By these means the fibrous character of the roots is retained, fruit buds soon form and fruitfulness ensues, while at the same time adequate wood growth for extension is produced. When in full bearing condition the health and fertility of the trees must be maintained by periodical surface dressings.

Pruning and Nailing Morello Cherries on Walls.—Trees grown in fan shape will have abundance of young wood ready for training in, whether the old bearing shoots of last year have been cut out or not. The latter should, therefore, if not already done, be dispensed with to make room for the younger shoots, training these in from the basal parts as far as possible so as to keep the trees well furnished. Nail or tie in the young shoots 2 to 4 inches apart, leaving them unshortened. Before training dress the trees with an insecticide and wash the walls.

Renovating Orchards.—Old orchards are frequently too crowded, the number of trees being in many cases far in excess of what should

occupy the ground. Added to this the branches are almost invariably allowed to remain too thickly placed, with the result that they bear very indifferently. One tree allowed free extension, with abundance of light and air passing through it in the summer, is better than many crowded together on a similar extent of ground. The first step towards renovation ought to be to thin out the trees, followed by judicious regulation and pruning for several years. Thus a transformation may be effected in the value of the trees, which will well repay for the trouble expended.

Renovation by Grafting.—An excellent way of improving old trees is to head them down now, and in the spring graft scions of approved varieties on them. This system of renovation is applicable to Apple and Pear trees which are in a healthy condition, but not good varieties. The scions for grafting should be cut this month, laying them in moist soil or sand under a north wall to retard their growth until the sap flows freely in the stocks. Strong limbed trees which are headed down for the purpose of grafting ought not at present to have the branches shortened to the exact point where the grafts must be inserted, but left about a foot longer, reducing them to the desired length just prior to adjusting the grafts.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest House.*—The chief thing to aim at is the fertilisation of the flowers, which, having developed in a comparatively genial and well ventilated atmosphere, have opened well and are well furnished with pollen. Raise the temperature to 50°, if it has been lower through the night, as soon as possible after daybreak, and maintain it at that figure during the day by artificial means, putting on a little air so as to induce a circulation without causing a draught. Maintain a genial condition of the atmosphere by damping the paths and borders in the morning and early in the afternoon of fine days. By ventilating early with a suitable temperature the trees are kept in steady progress, the blossoms become perfect, and fertilisation is readily effected. The pollen can be distributed by means of a camel-hair brush, feather, plume of Pampas Grass, or shaking the trellis. Varieties deficient in pollen should have some applied from others. The night temperature must now be 50° to 55° in mild weather, permitting a fall of 5° through the night in severe weather, 55° by day from fire heat, advancing to 65° from sun heat. Increase the ventilation freely above 55°, but not so as to lower the temperature, and close at 65°, a few degrees advance from sun heat being beneficial.

Disbudding must not be done hurriedly, but any strong shoots of the previous year having a tendency to push growth in advance of the others may be commenced with first, removing the growths on the upper side of the shoots, and then reducing the side shoots to the number required, namely, one from or near the base as possible for to supplant that now fruiting, and another or more above or on a level with the fruit, and which should be pinched at a few inches of growth, or if the shoot be an extension leave growths at about every 15 or 18 inches to form the bearing shoots of next season, continuing those with the leader intact. Disbudding, however, should be commenced before the shoots are an inch long, and be continued at short intervals until no more shoots are left than will be necessary for furnishing the wood of the ensuing season's bearing. Afford due supplies of water to inside borders, and protect the roots outside with dry material. After the fruits are set an occasional syringing will assist the trees to cast the remains of the blossoms, yet avoid heavy syringings, which have a tendency to weaken the growths.

Second Early House.—The house to afford ripe fruit early in June must now be started, employing fire heat only to maintain a day temperature of 50°, raising it early to insure the development of the blossom with light and its due airing, increasing the ventilation at 55°, avoiding cold currents, and allowing an advance of 5° to 10° from sun heat and corresponding ventilation. A night temperature of 40° to 45° is sufficient until the blossoms are well advanced for expansion, when it should be gradually raised to 50°. Syringe the trees in fine weather in the morning and early afternoon until the flowers show the anthers, when damping the borders and paths will be sufficient, admitting a little air constantly, with a gentle warmth in the pipes. When the pollen becomes ripe artificial fertilisation may be resorted to. If water is wanted give a thorough supply, affording liquid manure in a tepid state to weakly trees. Where the blossom buds are superabundant remove those on the under side of the trellis.

Succession Houses.—These should be kept as cool as possible by free ventilation. The house to be started early in February should now be closed, furnishing full supplies of water to the borders, merely excluding frost, and ventilating fully above 50°. Push forward the pruning and dressing of the trees in late succession houses, thoroughly cleansing them, securing the trees to the trellis, ventilating and keeping them as cool as possible. If necessary give a supply of water at the roots.

Pines.—For supplying ripe fruit in the spring and early summer the plants of such varieties as Smooth-leaved Cayenne, Charlotte Rothschild, and Black Jamaica, that showed fruit in October and November, are good; but these Pines seldom start in sufficient number at that time, and any starting now will not be ripe by May and June. Plants, therefore, of the Queen, Enville, and Providence varieties, which require less time to arrive at perfection, should now be induced to start their fruit. Select from the successional stock plants that have been subjected to somewhat cool and dry treatment, choosing those with an enlarged base and a tendency to open in the centre. Place such plants in a light house or pit, and plunge them in a brisk bottom heat of 85° or 90°, the atmospheric heat ranging between 60° and 70° at night, according to external conditions, allowing 5° to 10° more by day under

favourable circumstances. A genial atmosphere should be maintained about the plants by occasionally damping cool surfaces about the house, steam from hot-water pipes being very pernicious. Examine the soil about once a week, applying liquid manure or water with a little guano in it when needed, and at no other time.

Figs.—*Early Forced Trees in Pots.*—When the terminal buds have fairly started increase the temperature gradually during mild weather, it being most beneficial when derived mainly from solar heat, and should always be aimed at in preference to promoting growth during dull weather, and in a high night temperature. The advance must, of course, prevail all round, but that of the night should be 5° to 10° less than that of the day. With the trees coming into leaf maintain a night temperature of 55° to 60°, give a little air at 65° when the morning gives promise of an increase from sun heat, and keep through the day under its influence at 70° to 75°, closing sufficiently early for the heat to rise to 80°. Syringe the trees and walls twice a day according to the state of the weather, and damp the floors in the evening when the day is unfavourable for the afternoon syringing. Give attention to the fermenting material, taking care that the heat about the pots does not exceed 70° to 75°.

Early Forced Planted-out Trees.—To have fruit ripe at the end of May or early in June the house must be closed at the new year. The border should be properly moistened down to the drainage. A night temperature of 50° and 55° by day artificially is sufficient to commence with, allowing an advance from sun heat to 65°, but with ventilation from 55°. Syringe the trees twice a day with tepid water or a few degrees warmer than that of the house, always allowing the trees to become dry at night, and on dull days modifying the syringing in accordance with the atmospheric conditions.

Succession and Late Houses.—Proceed with the pruning, thinning, and shortening the wood that has reached the extremity of the trellis, so as to give room for the successional growths, and wash the trees with warm soapy water. In the case of scale use a petroleum emulsion formed of 8 ozs. softsoap dissolved by boiling in half gallon of water, and on removing from the fire add 1 gill (quarter pint) of petroleum, mixing well, and dilute to 2 gallons with boiling water. Apply with a stiffish brush, and so as to dislodge the scale. Thoroughly cleanse the woodwork and glass, and limewash the walls, adding a handful of flowers of sulphur to each pailful of the limewash. Remove the old mulching, and supply a mixture of lumpy loam, with a fourth of decayed manure, and sixth of old mortar rubbish. Keep the house cool and dry.

PLANT HOUSES.

The Forcing House.—With proper management there is no need to prepare a house for forcing plants into flower before this period of the year. It, however, should be done without delay if leaves in a dry state have been stored in readiness, and if there is a bed in the structure it should be filled with leaves and a little manure mixed through them. A bed of dry Oak or Beech leaves give a gentle heat for a long time. By no other means do plants come into flower so freely as when forced by standing or being plunged amongst fermenting material of this nature. When litter is not freely employed the house may be filled with Lilacs, Prunuses, Azaleas of kinds, Deutzias, Spiræas, and many others, while bulbs of various kinds may be stood or plunged amongst them. The gentle moist heat arising from the leaves will be ample at first. During very cold weather the temperature may be maintained at 50°. When hardy plants, including bulbs, are subjected to too much heat at first they do not grow with the same freedom as when gently excited. Lily of the Valley is an exception, and must be placed in a brisk heat to force it out early in the season. All plants should be removed from the forcing house just before the flowers expand, as they are invariably more fragrant, of better colour, and last considerably longer either when cut or for decoration in their pots. Only gentle heat is needed to bring forward Epacris if they are not coming sufficiently fast into bloom. Where a number of kinds are grown there is always some flowering from the early part of October until the end of April or later.

Late-flowering Epacris.—Those that were cut back late last season will not have made strong lengthy flowering shoots. These should have the flower buds removed as soon as they are large enough, and repotted if they need more root room, but not cut back. We have always found that our best plants are those which have about 1 or 2 inches of growth on them at this period of the year. Plants in this condition, potted early and exposed to full light and air during the growing season, frequently make growths 2 to 3 feet in length, sturdy and well ripened, and consequently flower profusely.

Erica candidissima.—Market plants of this variety that flower well cannot readily be had in the same condition the following season. If cut back, allowed to start into growth, then repotted and given an extra season, removing any flowers that appear, they make splendid plants. The same may be said of *E. hycmalis* that are cut back late. They often only make short growth, which flowers profusely if allowed to do so, and, strange to say, these plants have much better coloured flowers than those grown for market. If the flowers are removed and the plants allowed to extend their shoots good stock will be produced with shoots 18 inches to 2 feet in length. Keep these plants perfectly cool, give abundance of air and water carefully, but never allow them to become dry.

Azalea indica.—Keep the main stock of these plants perfectly cool and they will rest more naturally. Dryness at the root and in the atmosphere is detrimental to the well-being of these plants. During the period of rest few plants resent fire heat more than Azaleas. If,

except when we have occasion to force them into flower, we treat them more as hardy plants we should find better and healthier examples in most gardens. The plants should be watered carefully and syringed occasionally to keep their foliage free from thrips. They do best standing on a cool, moist base, where fire heat only employed to exclude frost.

Salvia gesneræiflora.—Where this is grown the flower buds will just be visible, and the plants, if well rooted, will be benefited by a little chemical manure applied to the surface of the soil. On no account should they suffer from an insufficient food supply, or the flowers will be small. Cuttings from near the base may be taken, inserted in thumb pots, and rooted under hand-lights in a cool house. They make larger and better plants than those rooted in heat in the spring.

Chrysanthemums.—Where large blooms of exhibition quality are needed cuttings should be inserted without delay. Good sturdy shoots in small pots will root freely in sandy soil and a little leaf mould, watered, and then placed under hand-lights in a cool house. Keep the hand-lights close, and use no fire heat except to exclude frost. Very few go off under this treatment. The cuttings intended for bushes need not be inserted for some weeks yet. Weakly cuttings seldom root freely, or if they do the best results are not obtained from them.

Callas.—Plants that are already throwing up their spathes will soon unfold them if placed in gentle warmth. They should not be forced in strong heat, as the plants become weak and the flowers are often poor in colour. Wherever they are forced a little air daily when the weather is favourable should be given in order to maintain the plants as sturdy as possible.

THE BEE-KEEPER.

APIARIAN NOTES.

HINTS FOR 1895.

A FEW days ago whilst searching amongst old bee literature for information I discovered several articles by a great author on bee matters, two of which I take as my text. One article advocated the theory that bees had first to store their honey in the empty cells in the lower part of the hive, after which it had to be carried to the supers, in order that it may be "ripened" and made fit for use. The other advised the removal of combs and contracting the hive, so that the honey would be stored at once in the supers!

In order to keep on the right track, yet to move forward, I advise all concerned, whatever their calling may be, while sticking fast to what they know to be good, to strike off the beaten path, make search, and experiment after truth and knowledge in lines of their own. Bees must have attention, but do not require the amount nor expense we read of. To avoid both, they should be attended to at the right time, and everything studied with economy.

Bees do not need more help from man to carry on the internal economy of the hive than to provide them with a comfortable dwelling containing ample provisions, which will tide them over from September to May or June. During that time, if kept wind and water-tight, and if no disease is present, there will be no dead bees to stop the entrance, or along with damp to make the hive a putrid mass. Feeding bees at times they do not require it, is tantamount to giving medicine to man—doing good when necessary, but harm when it is not.

As important as the above towards profit is the size of the hive. Every bee-keeper should know, but judging by such writings as I have quoted above, many persons have not this very essential knowledge or they would not recommend hives which have barely room to contain 20,000 eggs, larvæ, and sealed maturing bees, so that instead of 4000 bees hatching daily there cannot be more than 1000 in the height of the season. On these points rests nearly the whole matter of successful bee-husbandry, but which few comparatively speaking act up to.

1894, so far as I have observed, has not given anything new, but rather a harking back to old things. Because bees do well and please their masters, the latter should learn whether they cannot do better. In these times of great competition we cannot afford to do things by halves, or to have any shortcomings whatever, whether it be in the production or in the produce; therefore, "whatever is worth doing, let it be done well."

Young queens, it must be borne in mind, are of the greatest moment so far as profit is concerned, and bee-keepers should not keep them longer than twelve months. I have had queens six years of age, but they were kept as breeders. Commence to raise queens as early in the season as circumstances will permit to take the place of swarmed queens in old stocks, or to supersede any which may be to the mind of the bee-keeper not in accordance with his wishes.

It does not matter, so far as fertility or longevity is concerned, whether queens are raised during May or September. Late-bred queens in some seasons do not mate, and in all cases queens are less fertile after they have deposited eggs from January till June, so that at the last date it is advisable to depose those which have done their best, and introduce a young but fertilised one.

Before closing I wish to emphasise the fact that bees are young, metaphorically speaking, until their wings become defective, so that the more rest bees have the longer they are kept young. Feeding and stifling bees in too small hives are both means to a bad end, and must be stringently avoided.—A LANARKSHIRE BEE-KEEPER.

HUNGER SWARMS—SEASONABLE NOTES.

A CORRESPONDENT reports a swarm of bees in December, and the event is believed to be unparalleled. This no doubt would be what is termed a hunger swarm, which is not at all uncommon at this time of the year, more particularly when the weather is mild, the bees having consumed all their stores; and if they remain in their old quarters it would mean death to all of them, so Nature very wisely warns them to seek a better home.

The result is they swarm and cluster on a neighbouring bush, and are hived by some intelligent bee-keeper, who probably has a few spare combs of sealed stores, or if no sealed stores are on hand, some frames of fully drawn out combs. These with a cake or two of candy as advised last week, will cause them to at once settle in their new home, and if kept warm and dry, will come out strong and healthy the following spring. It would be useless putting a swarm of that kind into an empty hive at this time of the year, as it would be impossible for them to build combs, and they would soon die of cold and starvation.

With the advent of the new year a sudden change occurred in the weather. High winds were followed by a fall of snow and severe frosts. As there is considerable warmth under a covering of snow, so long as the frosts last, it is not advisable to clear the snow off the tops of the hives, but directly a thaw sets in all should at once be removed, as the moisture from the slowly melting snow will penetrate through the smallest crevice much more than it ever does from a downpour of rain.

It is better to clear away the snow from the entrance of the hive daily, as those that have no porch to protect the entrance will be blocked. This will often entice the bees to the floor board, many of them will be numbed, unable to return to the cluster, and will die. In strong stocks the heat from the bees in the hive will cause the snow to melt at the entrance, which will not be an advantage to the colony, as the drier they are kept the better.—AN ENGLISH BEE-KEEPER.

TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Fruit Trees and Frost (D. R. W.).—If the trees are "laid in," that is if a trench made and the roots placed in it (the trees being close together) and then well covered with unfrozen soil, there they may remain till the frost departs, and the ground is in good condition for planting. If the ground is "like iron" when the trees arrive they will not be injured by remaining in the bundles just as they come for a week or ten days. If they can be placed in a shed the bundles may be opened, liberating the tops, but retaining the packing material round the roots, and if this is slightly damp, and further covered thickly with dry litter to exclude frost, the trees will sustain no injury. We have had them similarly stored for more than two months, and in taking them out for planting in spring found numbers of white rootlets starting in the litter. Planting was done quickly, yet carefully, with these rootlets quite fresh, the long branches shortened, and the trees made as good growth as could be desired in the summer.

Maggots Injuring Ferns (*A Thirty Years' Subscriber*).—The house in which your Ferns are growing is infested with a destructive weevil—a brownish beetle-like creature not often seen in the daytime, as it feeds in the dark. If with the aid of a light you can catch the weevils, by shaking the plants over a white sheet, for better seeing the enemy fall, you may then prevent the deposition of eggs which hatch out the maggots. Lemon oil is said to destroy them without injury to the plants. See also what is said on corrosive sublimate in answer to another correspondent.

Red Spider on Vines (*Subscriber*).—Vines that are infested with red spider may, after having been pruned and all loose bark removed, be washed thoroughly with a solution of softsoap, 4 ozs. to a gallon of water. Apply with a brush, reaching well into every crevice and angle, being careful not to damage the buds, but wash the rods or canes well about the "eyes." The washing does much good, especially if used tolerably hot, but not over 120°. After this the Vines may be dressed with Gishurst or other approved insecticides, which, to be safe and effectual, must be used according to the printed instructions accompanying them.

Potting Amaryllises (*N. S. P.*).—The bulbs may either be potted now or in February, but if the operation is carried out at the present time the soil must not be more than moderately moist, and after potting water should be withheld until they are started into growth, an indication that they are becoming active at the roots or fresh ones being emitted. The worst possible place for them is the hot-water pipes, as the soil will not only become too dry, but be subject to varied heat, which is not favourable to a free production of roots, on which the future growth in a great measure depends. Place them in the manure-heated frame, and keep them without water, the bulbs being potted in moderately moist soil, until they are advanced for flowering and pushing fresh growth, when they can be gradually withdrawn from the hotbed and placed in the house. The steam will not hurt the bulbs, only it must not be rank or excessive.

Berried Solanums (*Amateur*).—You had better not cut back your plants until April, as you have only a window in which to keep them, then by the time fresh growths push the weather may be warm enough for their being placed in a very sheltered position outdoors, protecting them from frosts which may occur in May, and cutting winds. More than half the old soil should be removed from the roots after fresh growth starts, repotting firmly in good turfy loam, a sixth part of crumbled manure, and a tenth of wood ashes. The pots may be plunged just over their rims in a sunny border for the summer, standing them on smaller pots in the ground to prevent worms passing to the roots. They must be watered as needed, which will not be half so frequently as if the pots were exposed. Clear soot water is good for Solanums when the pots are filled with roots. Some persons plant them out towards the end of May, lifting carefully, and potting firmly in September, watering well, sprinkling the foliage, and letting the plants stand in the shade for a time for keeping the leaves fresh and inciting quick root action. We have seen fine plants grown in that way, but all persons do not succeed alike. You might try both methods, and so gain experience that would be useful to you in after years.

Preventing Eelworm in Tomatoes—Corrosive Sublimate (*F. W.*).—As you do not find corrosive sublimate solution at a strength of 1 oz. to 30 gallons of water in the least injurious to delicate plants in pots, such as Adiantums and double Primulas, you may safely use it for disinfecting soil intended for Tomatoes at the rate of 1 pint of the solution to each superficial foot of soil placed level and 15 inches in depth, sprinkling with the solution, and when soaked in mix the soil thoroughly, so as to incorporate the whole evenly. If there be a suspicion of eelworm in the soil you may use the corrosive sublimate solution at double strength, 1 oz. to 15 gallons of water, sprinkling on each square foot about 1 pint of the solution, which will impregnate the soil to a depth of 12 to 15 inches if it be moist (as it should be) at the time, and if the whole be turned in the course of a few hours afterwards, the admixture will be assured. Tomatoes will bear an even stronger solution, but it is not wise to apply it, for the nitrifying bacteria are certainly retarded, if not destroyed, by the dressing. The manure you mention will be a valuable one for Tomatoes, 4 ozs. per square yard not being too heavy for a first dressing, and pointing into the soil before planting; afterwards use 2 ozs. per square yard, and wash in.

Peach Tree Buds Falling (*Anxious*).—The buds on the shoot sent were essentially faulty, and did not contain the rudimentary parts of the flower. One of the specimens, examined carefully by the microscope, had no stamens, and in another there were the usual staminate parts, but without any trace of the pistillate organs. There was not any evidence of parasitic attack from either vegetable or animal micro-organisms. The cause of the buds falling is this imperfect flower-formation in embryo, for what the bud is in that state so will the blossom develop, but as the buds are defective they are shed by the tree similar to other abortive embryos. It is a very interesting and little understood phenomenon, though occurring to a greater or lesser extent annually in gardens where Peach and Nectarine trees are grown under glass. The soil being moist now will not save the defective buds from collapse, as the mischief is caused at a much earlier date—that is, when the transformation takes place from a wood to a blossom bud, and is one of those things that neither science nor practice can unravel satisfactorily. We may say, however, that certain things are known to induce perfect bud formation, and their neglect its opposite, the

chief consideration being a firm and rather strong soil, which lies compactly, promoting a fibry root formation, stout, short-jointed wood, and double or triple buds at most joints. The remedy for refractory trees is lifting, firm and rather strong loam, with judicious after management. That is the course we advise, as the wood is somewhat long-jointed, rather sappy, or not well ripened, but this is not the sole cause of the buds falling, as over-maturity of the buds is a common cause of many failures in early Peach forcing.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*J. H.*).—*Chimonanthus fragrans*. (*A. B.*).—1, *Cypripedium insigne*, very poor form; 2, *Dendrobium cretaceum*; 3, *Lælia anceps*. (*B. O. K.*).—1, *Petasites fragrans*, the Winter Heliotrope; 2, *Zygopetalum Mackayi*; 3, *Catasetum citrinum*. (*M. S. T.*).—1, *Dicksonia antarctica*; 2, *D. squarrosa*. The *Bouvardia* is Alfred Neuner. (*Ignoramus*).—1, *Polypodium aureum*; 2, *Polystichum aculeatum*; 3, *Asplenium diversifolium*; 4, *Nephrolepis tuberosa*. (*Richard*).—1, *Anthurium Scherzianum*; 2, *Asparagus plumosus*.

TRADE CATALOGUES RECEIVED.

Peter Barr & Sons, 12, King Street, Covent Garden.—*Vegetable and Flower Seed Guide*.

George Bunyard & Co., Maidstone.—*Descriptive Seed Catalogue*.

Wm. Cuthbertson, Rothesay, N.B.—*Seed and Plant List*.

W. Cutbush & Sons, Highgate.—*Descriptive Seed Catalogue*.

W. Drummond & Sons, Stirling.—*Seed List*.

Thomas Methven & Sons, Edinburgh.—*Catalogue of Garden Seeds*.

Wm. Paul & Son, Waltham Cross.—*Seed Catalogue*.

Charles Turner, Royal Nurseries, Slough.—*General Seed List*.

Robert Veitch & Sons, Exeter.—*Catalogue of Seeds*.

COVENT GARDEN MARKET.—JANUARY 9TH.

MARKET quiet. Heavy supplies of Grapes still on hand, prices unaltered.

FRUIT

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, per half sieve ..	1	6	to	4	6	Lemons, case	10	0	to 15 0
" Nova Scotia, per barrel ..	10	0		15	0	Peaches, per doz. ..	0	0	0 0
Grapes, per lb. ..	1	0		2	0	Plums, half sieve ..	0	0	0 0
Cobs per 100 lbs. ..	21	0		23	0	St. Michael Pines, each ..	2	0	6 0
						Strawberries per lb. ..	0	0	0 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.	
Beans, Kidney, per lb. ..	1	0	to	0	0	Mustard and Oress, punnet	0	2	to 0	0
Beet, Red, dozen	1	0		0	0	Onions, bushel	3	6		4
Carrots, bunch	0	3		0	4	Parsley, dozen bunches ..	2	0		3
Cauliflowers, dozen	1	6		3	0	Parsnips, dozen	1	0		0
Celery, bundle	1	0		1	3	Potatoes, per cwt.	2	0		4
Coleworts, dozen bunches	2	0		4	0	Salsafy, bundle	1	0		1
Cucumbers, dozen	2	0		6	0	Seakale, per basket	1	3		1
Endive, dozen	1	3		1	6	Scorzouera, bundle	1	6		0
Herbs, bunch	0	3		0	0	Shallots, per lb.	0	3		0
Leeks, bunch	0	2		0	0	Spinach, bushel	1	6		3
Lettuce, dozen	0	9		1	0	Tomatoes, per lb.	0	2		0
Mushrooms, punnet	0	9		1	0	Turnips, bunch	0	3		0

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	6	0	to	8	0	Poinsettia, dozen blooms ..	4	0	to 6	0	
Azalca, dozen sprays ..	0	6		1	0	Pyrethrum, dozen bunches	2	0		4	0
Asparagus Fern, per bunch	2	0		3	0	Roses (indoor), dozen ..	0	6		1	0
Bouvardias, bunch	0	6		1	0	„ Tea, white, dozen ..	0	6		2	0
Carnations, 12 blooms ..	1	6		3	0	„ Yellow, dozen	2	0		3	0
Chrysanthemums, doz. bchs.	4	0		12	0	„ Safrano (English), doz.	1	3		2	0
„ doz. blooms	1	0		4	0	„ Maréchal Niel, doz. . .	3	0		6	0
Eucharis, dozen	4	0		6	0	„ (French), yellow, doz.					
Gardenias, per dozen ..	2	0		4	0	blooms	1	6		2	0
Geranium, scarlet, doz.						„ (French), Red, dozen					
bunches	6	0		12	0	blooms	2	0		2	6
Lilac (French) per bunch	5	0		6	0	Smilax, per bunch	4	0		6	0
Lilium longiflorum, per						Stephanotis, dozen sprays	4	0		6	0
dozen	6	0		9	0	Tuberose, 12 blooms ..	0	4		0	6
Marguerites, 12 bunches ..	1	6		3	0	Violets (English), dozen					
Maidenhair Fern, dozen						bunches	1	6		2	6
bunches	4	0		6	0	Violets (French), Parme,					
Mignonette, 12 bunches ..	2	6		4	0	per bunch	5	0		6	0
Orchids, per dozen blooms	1	6		12	0	Violets (French), Czar, per					
Pelargoniums, 12 bunches	6	0		9	0	bunch	2	0		3	0
Primula (double), dozen						Violets (French), Victoria,					
sprays	0	6		1	0	dozen bunches	2	0		2	6

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Ferns, in variety, dozen ..	4	0	to 18	0	
Aspidistra, per dozen ..	18	0		36	0	(small) per hundred	4	0		6	0
Aspidistra, specimen ant	5	0		10	6	Ficus elastica, each ..	1	0		7	0
Chrysanthemums, per doz.	4	0		8	0	Foliage plants, var., each	2	0		10	0
„ large, per doz.	9	0		18	0	Lycopodiums, per dozen ..	3	0		4	0
Cyclamen, per dozen ..	9	0		12	0	Marguerite Daisy, dozen ..	6	0		12	0
Dracæna, various, dozen ..	12	0		30	0	Myrtles, dozen ..	6	0		9	0
Dracæna viridis, dozen ..	9	0		18	0	Palms, in var., each ..	1	0		15	0
Erica, various, per dozen ..	9	0		18	0	„ (specimens) ..	21	0		63	0
Euonymus, var., dozen ..	6	0		18	0	Poinsettia, per dozen ..	10	0		15	0
Evergreens, in var., per						Primulas, per dozen ..	4	0		6	0
dozen ..	6	0		24	0	Solanums, per dozen ..	10	0		12	0



PROFIT AND LOSS.

IN a review of crop and stock possibilities for the New Year we were reminded of the fact that some profit is still forthcoming from most farm produce under really good management. This thought was followed by the very natural one, What is good management? Under test of our title of Profit and Loss, good management is certainly not simply making the best of things as we find them, but rather in a careful beginning and subsequent persistent effort to maintain a high standard of sound practical management on the whole of the farm. This does not point at all to fanciful high farming, but to land well tilled, well cropped, well stocked; to an avoidance of that which is inferior or at all doubtful in land, seed, and live stock. Home farmers have to make the best of it in the matter of land, but then they are generally able to carry out improvements with a free hand; there is the fault, therefore, if poor land is not enriched, or heavy land not rendered permanently porous mixed soil.

To tenant farmers who intend hiring a farm at Lady day we say, Start well by avoiding all farms having the land much out of condition, or with insufficient outbuildings at the homestead and in the meadows. Keep well within your means; never forget that it is the man having reserve force in a good balance at the bank, who is able to bide his time in selling and to take advantage of bargains in buying. It is precisely the having to sell farm produce at a sacrifice that first cripples and eventually ruins many a man. The proverbial £10 an acre may and does answer under favourable conditions, but in a preliminary calculation of ways and means regard should be given to the possibility of losses or sickness among live stock, and to an unfavourable first season for crops. Bearing this in mind we would with say £600 of capital, rather hire 40 acres of really good land than 60 acres of inferior land, or even if there was choice of as much as we liked of the best land, common prudence should lead us to keep to the lesser quantity. Start fair also by not "taking it out of the land" the first season, nothing is more foolish or suicidal in farm management than this. It is something in these hard times to get hold of land that is really in good heart.

Having been so fortunate, we begin on the principle of sustained fertility, and knowing that no crop can be taken from the land without some diminution of its store of plant food, we take special care to replenish such waste by the judicious application of a dressing of manure for the next crop. This rule in cultivation, this safe guide to cropping, applies with equal force to *every* crop—not only on arable land, but meadow land too. "But," says the beginner, or rather our new tenant, "how am I to enforce the rule at the outset, when the outgoing tenant leaves very few manure heaps behind him?" The answer, though simple, is worthy of being printed in letters of gold; it is, Use pure chemical manure in well-balanced proportion, taking particular care to include the three essential elements of plant food—nitrogen, potash, and phosphoric acid—in the mixture as a safeguard, because you cannot be certain if the soil is more or less deficient in any or all of them. By all means use special mixtures for special crops, but for a general safe dressing use one-eighth nitrate of soda, one-eighth sulphate of ammonia, one-eighth steamed bone flour, one eighth muriate of potash, and one-half mineral superphosphate, at the rate of, say, 4 cwt. per acre.

Give equal care to the selection of live stock—avoid all inferior or badly bred animals. In cows, seek for deep milkers

yielding rich milk; in cattle, store beasts of reliable breeds; in horses, sound useful animals; sheep without taint of foot rot; swine selected for a special purpose—either for bacon, or porkers, or both. Berkshire, Tamworth, small and middle whites all claim attention. For general purposes we have found black Suffolk sows crossed with a middle white boar excellent, just as good in its way as crossing Suffolk ewes with Hampshire Down tups. Both crosses afford a sturdy vigorous progeny, soon growing into money. The same rule of selection applies to poultry. Avoid mongrels all round, get young healthy stock of breeds of high repute, cross-breed with judgment, weed out all inferior stock persistently, keeping only that on which a profit is possible. Observe, we avoid mention of anything like pedigree stock, because it is only under exceptional circumstances that an ordinary farmer can expect it to answer; but a well-selected pedigree animal may prove a profitable investment if turned to account in the right way for breeding purposes.

WORK ON THE HOME FARM.

Mild weather till Christmas enables us to have numbers of new laid eggs without special care, but with the change to colder weather, warm food, and extra care for the laying hens became necessary. Avoid turning them out in cold weather. If a well sheltered run can be contrived it is good for them, otherwise if they can have access to a covered light dry place, with plenty of short litter on the floor, they get ample exercise if some mixed corn is thrown among the litter. Some peat moss litter, with corn thrown among it every morning, is also an excellent thing for them, as they scratch it over for the corn; they dust themselves among it, and it is an excellent deodoriser in a fowl house. Exclude all cold draughts, and do not forget to close openings along the eaves, through which cold air is often suffered to come in strong currents on the fowls when they are roosting. This is a suitable time of the year to look closely into the matter of table poultry, in view of any possible improvements this year. The cross of Dorkings and Indian Game, which we have so often recommended to our readers, has had special attention drawn to it lately at the exhibitions of dead poultry. Plump breasts, small legs, delicate flavour, the very perfection of table birds, are the result of this cross. Every home farmer ought to provide a full supply of such table chickens. Reference to the pages of "Poultry" will enable them to see where to procure both Indian Game cocks and Dorking hens.

Go carefully through store cattle in the yards; see if all are keeping up condition; consider if any change can be made advantageously in the dietary. Withdraw any beasts at all unsatisfactory; place them apart, and see that they have special treatment. If our advice at the beginning of winter as to grouping of store beasts (placing only animals of the same size together) had sufficient attention, each beast ought to have been able to hold its own, and to get ample food and shelter. But where any delicate, weakly, or undersized animal was thoughtlessly placed with larger beasts it will have probably fallen off in condition through being driven from its food by the other beasts. A little observation will convince anyone that such bullying goes on very frequently when cattle are confined to winter quarters.

METEOROLOGICAL OBSERVATIONS.

OAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1894-5.		Barometer at 32° and Sea Level.	Hygrometer.		Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature			
December and January.			Dry.	Wet.		Direc- tion of Wind.	Max.	Min.	In Sun.		On Grass.
		Inchs.	deg.	deg.			deg.	deg.	deg.	deg.	Inchs.
Sunday ..	30	29.340	32.9	30.4	N.W.	40.3	38.0	30.8	47.9	28.8	—
Monday ..	31	29.645	30.2	29.3	N.	38.9	36.8	26.3	55.9	24.6	—
Tuesday ..	1	29.907	29.9	28.7	N.	37.9	36.3	27.3	57.2	25.0	0.021
Wednesday ..	2	29.885	33.0	32.3	W.	37.1	41.6	28.0	58.4	24.8	0.156
Thursday ..	3	29.493	32.1	31.9	N.	36.9	36.1	31.9	46.6	28.2	0.019
Friday ..	4	29.912	34.9	32.3	N.	36.7	38.1	31.7	55.9	29.0	—
Saturday ..	5	29.975	36.2	34.9	N.	36.3	37.8	34.3	43.7	31.7	—
		29.737	32.7	31.4		37.7	37.8	30.0	52.7	27.4	0.196

REMARKS.

- 30th.—Sunny early; frequent sprinkles of snow from 10.30 A.M. to noon; bright sunshine all afternoon, and clear cold night.
 31st.—Generally sunny, but occasional intervals of cloud; clear cold night.
 1st.—Bright sunshine all day; fine night.
 2nd.—Heavy snow from 7 A.M. to 8 A.M.; bright sun from 10.30 A.M.; snow lying in shade all day.
 3rd.—Wet snow from 2 A.M. to 5 A.M.; fine sunny day; cloudy at times in evening, and slight snow showers.
 4th.—Slight snow or sleet showers early and till 10.30 A.M.; bright sun with occasional intervals of cloud from 11.30 A.M.
 5th.—Overcast all day; occasional flakes of snow falling.
 A cold and rather dry week.—G. J. SYMONS.

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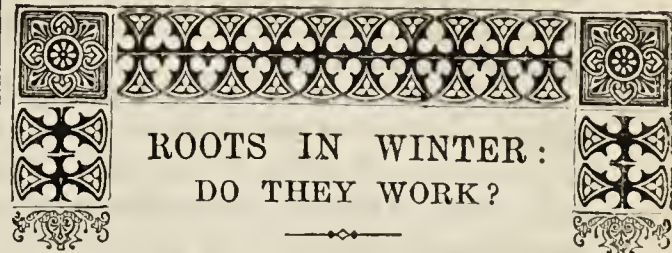
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ROOTS IN WINTER: DO THEY WORK?

THIS is a question of much interest, and the
commonly accepted opinion that Grape
Vines make no apparent root growth until the
plants are well covered with foliage would appear
to be decisive on the point. But provided the
soil of Vine borders is kept throughout the
winter in a slightly moist condition, at any time
very fine young roots may be found for the
looking. A little consideration, however, brings
us face to face with facts which throw more than
a shadow of doubt as to whether the Vine,
assuming it makes no root growth in winter,
prove the case. It is plain that what is termed
"resting" cannot mean a cessation of all the
functions of a tree; because during the whole
period in which deciduous trees are bare of
foliage there is a progressive growth of buds,
this being more marked in the case of fruit
buds than of wood buds. From the beginning
of December till the latter part of January
growth is very slight, but still it is discernible.
Previous to and after the period mentioned
growth is plainly evident. We hear and read
of stored up sap, but what it is, or what part
it plays, no one can tell. This, however, is
certain. A tree may be pruned at any time
after the fall of the leaf without evidence of
the sap being present, but let the operation be
delayed until a few weeks previous to the time
when the tree should exhibit outward signs of
growth, and sap is so abundant that it flows
from every wound. The only medium by which
the supply can be obtained is the roots, yet we
are to believe there is no growth of roots until
weeks afterwards.

The Peach may be enlisted to furnish an
illustration. Grown out of doors Peaches do
not cast their buds, but when in glass houses
they do under certain conditions, the chief of
which is soil dryness. If a Peach border is
allowed to become dry at any time during the
period of rest the result is always the same,
for when the buds arrive at a certain stage of
growth they drop off the tree. This shows that
at least the Peach requires something more
than stored-up sap. In addition to this negative
teaching, the Peach furnishes a positive illustra-
tion. A Peach tree cultivated in a pot, when
re-potted in the autumn, after the crop has been
gathered, continues to make new roots during
the winter. This fact is generally known, and
would be decisive on the point, even if no other
case could be found; but every well-cultivated
tree in a garden can show evidence that roots
are not inactive during winter. Do not, how-
ever, go to old trees whose roots have to be

sought for at unknown depths, but to young trees which are attended to annually, and the soil will be found to contain a network of the finest fibrous rootlets, every one exhibiting unmistakeable signs of activity. In the winter, and when the soil has softened after frost, I have found on many kinds of fruit trees roots in a state of activity.

During the last winter I had an opportunity of noting a very striking example of root action. Some young trees were lifted in November, and owing to circumstances could not be replanted at the time. The balls were packed round with littery straw, and were not again touched until after the middle of January. The deciduous trees comprised a Japanese Maple, a Cydonia, and two deciduous Cypresses. The Cydonia proved the more active winter rooter, for the ball bristled with white rootlets, but the others also were furnished with growing roots. I have repeatedly examined young fruit trees received from a nursery and planted in November, and in January the roots were plainly in a growing state. I do not doubt that it is not always possible to find trees in this condition, but I would rather blame the cultivator for this than the trees. The former frequently leaves the roots exposed to the air, instead of either planting at once or protecting them until they can be planted, and he does not always smooth with the knife the broken ends of roots.

Should the objection be made that trees having only a few thick, fibreless roots, if planted in the beginning of winter will survive as well as trees with a solid ball of fibrous roots, the fact cannot be gainsaid. But they survive with a difference. The first mentioned will not respond in the same manner as the latter to the call of spring. Life in the first case has been no more than preserved, and no provision made for the future. In the other, the buds will have been to a certain extent provided for. Not so much, however, as in the case of trees that had been left in the ground untouched, and which are ready for the new season with floral organs fully equipped, with wood buds ready to develop into full leafage, and shoots ready to extend with the lengthening days. These well-marked differences between each of the three classes of trees can be accounted for only by the condition of the roots. The trees with roots intact begin the season with foliage and flower in the best condition. Those transplanted with a mass of fibrous roots exhibit in flower and foliage the effects of the check, while those having no fibrous roots, but merely bare underground stems, require much care so that they may be kept alive during the summer.

In practice every intelligent gardener acts on the principle that roots are active in some degree throughout the winter. Trees are purchased at the fall of the leaf; they are chosen as much with reference to the fibrous nature of the roots as for the appearance of the tree; planted as early as possible in winter; staked to keep the roots from moving, and mulched to protect the roots, and at the same time to enrich the soil. Experience has shown that the above is good practice, and it has been carried out for centuries. No doubt trees are most accommodating, but I would much prefer to leave over the planting which could not be done in November until spring, so as to allow them to have full advantage of what we term the "resting" period. I had a happy illustration of the success of late spring planting so recently as 1892, when I planted 150 Apple trees in the first week of April. I have had young trees succeed as well in the first year as these did, but never better. They came from a well-known fruit nursery 200 miles distant by rail, and arrived as fresh as if they had been lifted in our own garden. I took extra precautions, no doubt, for each tree, root, and stem was immersed in a solution of loam, cow manure, and water. A little good compost was allowed for trees, and they were watered, in all, three times. Many of them set fruit, which, of course, was nearly all removed, and the shoots they made would average quite 3 feet in length. They were examples of doing with hardy trees what is often done with Grape Vines—that is, planted near the stage of growth when the buds are rapidly swelling. I have

no doubt they would have succeeded equally well if the buds had been at the bursting stage; indeed, last spring I obtained from a nursery a score of large Laburnums with the buds bursting, and with care in planting, and in watering afterwards, they grew and flowered well.

It is evident that an affirmative answer to the question heading these notes has a distinctly practical bearing on cultivation. The dryness of inside fruit borders is seen to be inimical, inasmuch as it prevents the progression of certain changes in the buds of the trees, and more particularly as regards fruit buds. In short, the trees are starved. There is, moreover, good reason shown for pruning fruit trees directly the leaf falls. Early pruning of trees grown under glass is particularly advantageous, for it is plain that the removal of unnecessary shoots allows those that are left to receive the greater benefit. In other words, by removing surplus growths at the end of a season the tree is discharged from making provision for buds which in any case must be cut off, and thus the legitimate buds gain advantage.

Again, it must follow that manurial mulchings of whatever nature applied to fruit trees in the autumn shall be productive of benefit at once, and not prospectively as some persons think. It also shows that old trees requiring to be root-pruned are better done in detail in the summer than in the winter, because in the former case a year is gained with at the same time less chance of injury to the trees. When root-pruning is carried out in the winter the growth of the tree during the next summer is affected, and fruit buds are the work of the autumn. If, on the other hand, stout roots are cut back during the early summer the tree will be in much the same condition the following autumn, as the winter-pruned tree would be a year later, and the comparative activity of the new roots produced, as the effect of root-pruning will provide fruit buds for the coming year.—B.

TAKING STOCK.

IN the busy world of commerce, where success depends so largely on method and accuracy in the conduct of affairs, periodical stock-taking has long been recognised as an absolute necessity to the continuance of prosperity. This is a fact so generally acknowledged that negligence in the matter among firms or individual business men is looked on as a sign of present unstableness, if not a precursor of future collapse. This commendable practice of stock-taking has not yet become universal in private gardens, although in a certain sense it has long been pursued in many, and may with advantage be more generally followed in the future.

With the beginning of the year one of the most important matters to demand attention is the overhauling of the seed-room, to take stock of the reliable (and unreliable) seeds on hand, and then determine how many more will be required, so that the seed order may be made up and dispatched without delay to insure a speedy execution. To a young gardener in his first head place the difficulty of making out the seed order so as to have about the right quantity of the various kinds of seeds is one that must be grappled with, for if attended to in only a haphazard fashion the chances are that far too many seeds of such vegetables as Salsafy, Leeks, Endive, and sweet herbs will be ordered, and insufficient amounts of main crop vegetables, such as Turnips, Onions, Carrots, and Beet. This latter state of affairs causes much annoyance at sowing time, by deferring the completion of the work till a further supply of seeds is obtained. On the other hand, should considerable quantities be left it is not good policy to rely on them entirely the following year (unless they are first tested in moderate heat), because if any particular sowing should fail it usually means a break in the supply of produce.

Sometimes the work of making out the seed order is made easy by reference to the orders executed in previous years; but too often, when entering on new duties, a gardener finds nothing of the kind to guide him. Then, again, some families have a great partiality for certain vegetables, which must in consequence be grown in far larger bulk than is necessary in another garden of the same size where such abnormal demands do not exist. These seemingly unimportant details amply repay the little trouble involved in making inquiries about them. When the requirements of an establishment are once ascertained the matter is usually plain sailing.

With a view to helping those who may at the present time be somewhat puzzled as to the right quantities of seeds to order I will give as nearly as can be ascertained the amounts required for a kitchen garden of an acre. It will then be easy to accurately calculate the quantity to order for gardens of any size:—Peas, early, 1 quart; second early, 1 quart; midseason, 2 quarts; late, 1 quart; Beans—Broad, early, 1 quart; Longpod, 1 quart; Kidney, 1 pint; Scarlet Runners, 1 quart; Cabbage, Brussels Sprouts, Broccoli, Borecoles, 2 ozs. each, in several varieties; Savoy, Leek, Endive, 1 oz. each; Onions, 6 ozs.; Carrots, 3 ozs.; Turnips, 4 ozs.; Celery, two varieties, $\frac{1}{2}$ oz. of each; Spinach, 1 quart; Beet, 4 ozs.; Parsnip, 2 ozs.; Lettuce, in three varieties, 3 ozs.; Scorzonera, $\frac{1}{2}$ oz.; Radish, Long and Turnip, half pint each; Mustard and Cress, 1 pint each; Parsley, Curled, 1 oz.; Shallots, 1 lb.; sweet and pot herbs, packet of each. On the principle that everything can be done more economically on a large than on a small scale it will be found, for a garden 10 acres in extent, the quantities of the various seeds required may be set down at an average per acre slightly less than those given.

It is a difficult matter to estimate with accuracy the quantities of flower seeds required for gardens either large or small, as so much depends on the way in which annuals and biennials are used. In some places the summer bedding is now almost entirely done with these, and in others they are confined to patches in a mixed border. If, however, a plan for the bedding arrangements the following season is thought out beforehand no great mistakes ought to be made in securing the requisite number of plants, always making a point to err on the side of plenty, so as to be able to help a neighbour who may happen to be less fortunate.

In each department of the garden stock-taking should in turn take place, so that past failures may be profited by and the causes avoided. The whole stock of bedding plants should be carefully looked over, note taken of any which are in an unsatisfactory state, or of which the number is extremely limited. In such instances things may be greatly improved by placing the plants in extra heat, and by commencing the work of propagation as soon as possible. On the other hand, if the chances of increasing the stock to the necessary extent seem very remote a suitable substitute may be looked for, and propagated accordingly. In the reserve garden, too, many things claim attention. Spaces may be marked off for the propagation of hardy edging plants for flower beds and borders, as I find it is an excellent plan to always have a stock of these in readiness, as they seem to be wanted at all seasons of the year. If the ground is prepared as soon as the weather permits the stock of any particular kind may be lifted, divided, and replanted in March, and is then ready for use next autumn if required.

Quarters of ground from which Spiræas, Dielytras, and Deutzias have been lifted, may be manured and dug so as to be ready to receive similar plants as soon as they have completed their growth and been hardened after forcing. It is much better to plant them out again somewhat early in the spring should the weather prove open, than to keep them in pots till June, often without enough water being given them, which treatment brings them into a stunted condition from which they take several years to recover. Let it, however, be clearly understood that all forced plants ought to be properly hardened before being again planted out, and that favourable weather in April or May be chosen for planting.

Notes may also with advantage be made now of the various spring bedding plants, of which a largely increased stock is required, so that when lifted from the beds by-and-by division and replanting to the required extent may be carried out. Now that the work of clearing leaves from lawns and shrubberies has been completed, any unsightly places or gaps should be noted, and the plants for filling them ordered, so that these odds and ends of planting may be completed as soon as possible.

In the kitchen garden a careful survey will be necessary, as a little close attention now may prevent the occurrence of a break in the supply. To illustrate this point let me give a few practical examples. At early spring time it is usual for Parsley to be scarce. In all instances in which this is likely to be the case, if good roots are lifted at once, planted in boxes, and placed in heat, in a few weeks good pickings may be obtained from them. Again, a scanty supply of Lettuce may be greatly augmented by sowing in heat at once and transplanting the seedlings in a frame placed over a hot-bed. If this hotbed is made up now, while the newly sown seeds are germinating and the plants growing into the right size for transplanting, the frame may be planted thinly with Lettuce lifted from a warm border. By thus surrounding them with conditions under which constant growth can be made at a time when those in the open air are dormant the supply is considerably increased, because the frame-grown plants attain a greater size before being cut for use.

In the plant and forcing houses a careful scrutiny will show

which plants and crops require special attention to keep up the necessary stock during the year. Old Crotons and Dracænas may be cut down, the tops inserted as cuttings, and in the case of the latter the stems laid in cocoa-nut fibre refuse to induce them to send out young shoots. Good numbers of *Panicum variegatum* and the different varieties of *Tradescantia* and other trailing plants must be inserted, so that they will be ready for removal from the propagating cases by the time this operation begins in earnest.

The sowing of Cucumber, Melon, and Tomato seeds for the production of early crops also demands attention. If a minute inspection in the way above indicated is made all round notes may be taken of work requiring attention later on, and by thus arranging it in a systematic manner early in the year much may be done towards turning the failures of past years into incentives to success in the present one.—D. W. C.



MILTONIA JOICEYANA.

THIS charming Orchid is a natural hybrid between *M. Clowesi* and *M. candida*. Mr. F. J. Thorne, gardener to Major Joicey, Sunningdale Park, who exhibited it at the Drill Hall some time ago, and received a first-class certificate for it, writes:—"Miltonia Joiceyana (fig. 8) thrives admirably in the same temperature as its supposed parents. The growths have two spikes each, with from twelve to



FIG. 8.—MILTONIA JOICEYANA.

eighteen flowers. In habit it resembles *Miltonia candida grandiflora*, but is much stronger. It was purchased at Messrs. Protheroe and Morris's salerooms amongst some *Odontoglossum ramosissimum*, and as that variety."

MESOSPINIDIUM SANGUINEUM.

THIS charming little plant was a surprise to me recently in a neighbouring collection of Orchids, as I have before seen it flowering only in the summer. The spikes are produced from the bases of the oval, furrowed pseudo-bulbs, and bear from six to nine flowers, each about an inch across. In colour these are a bright pink with a lighter centre. The genus *Mesospinidium* was established by Professor Reichenbach, and by this name the plants are generally known, although correctly they belong to *Cochlioda*, of which the best known is the comparatively recent introduction, *C. Noezliana* (*M. sanguineum*). The plants thrive in a compost consisting of good peat and sphagnum, and may be treated otherwise similar to *Odontoglossums* of the cool section.

CULTURE OF CÆLOGYNE CRISTATA.

It is often urged against Orchids that many of them, if not unsightly, are at least not ornamental when out of flower. Although to an enthusiast in their cultivation this fact does not detract from

their value in any way, most people will look more favourably on an Orchid which is always more or less attractive to the eye. This *Coeogyne cristata* certainly is, in fact it possesses nearly all the qualities that go to make a first-rate Orchid, and for this reason will no doubt be always popular.

The culture of this Orchid is very simple, but a few points need consideration to obtain the best results. Many growers use a good proportion of loam in the compost, and the good results attained show that in skilful hands this treatment is right. I should not, however, advise anyone uninitiated in Orchid growing to use this material to any extent. A much better article in my estimation is half-decayed leaf mould, used in equal proportions with peat and chopped sphagnum, with a more abundant admixture of charcoal than most other species require. This mixture will be found quite substantial, while at the same time affording abundant capacity for aëration, and the way the roots enwrap the compost will surprise many who have been in the habit of using heavy close mixtures.

The plants may be grown in pots, shallow pans, or baskets, according to the convenience or fancy of the grower. Shallow pans are, however, most frequently used, and probably most suitable. A good deal of care is required in fixing the plants, it being necessary to dispose the flowering pseudo-bulbs as equally as possible over the surface of the pans to produce well-balanced specimens. The pans must be well drained and loosely filled with compost to a convex mound. The pseudo-bulbs can be kept in position by pegging down the rhizomes with wire pegs or hairpins. Then proceed to cover the roots with the more fibry portions of the compost, diobling it in firmly and neatly around the pseudo-bulbs. Carefully avoid snapping off the young growing points, which are very brittle. After potting, the plants must have no water at the roots for a week, but be frequently dewed from the syringe.

C. cristata is often attacked by a small brown scale, which is very difficult to eradicate, and also by red spider if the atmosphere is at all dry. These must be kept under, or the foliage will be disfigured and the plants injured in health. With regard to temperature, it is one of the most accommodating of Orchids, thriving in a warm, intermediate, or even a comparatively cool house. The best position, however, is a cool shady corner in the Cattleya house, with plenty of water while growing and frequent sprinkling overhead. While at rest less water is required, but the pseudo-bulbs must not be allowed to shrivel, or weak growths and few flower spikes will be the result.—H. R. R.

THE LATE MR. CHARLES COLLINS.

As evidence of the esteem in which our late much-respected coadjutor was held by members of the gardening press generally, apart from the "Journal of Horticulture," a meeting has been held of his friends, who are connected with the whole of our contemporaries, with the object of raising a Fund for the assistance of his afflicted widow and the two small children she is unable to support. Mr. G. Gordon presided. It was resolved that

"In consideration of the services rendered to horticulture in his journalistic work by the late Charles Collins, of the high respect in which he was universally held, and of the fact that owing to the long-continued ill health of himself and his wife he was unable to make adequate provision for his family, who are in deep distress, a fund be opened for their benefit."

For the purpose of carrying out this excellent project a Committee was appointed, consisting of the whole of the permanent staffs of horticultural journals, with Dr. Maxwell T. Masters ("Gardeners' Chronicle"), Chairman; Mr. B. Wynne ("Gardening World"), Vice-Chairman; Mr. G. Gordon ("Gardeners' Magazine"), Treasurer; and Mr. T. W. Sanders ("Amateur Gardening"), Hon. Secretary. Any readers of the "Journal of Horticulture" who may wish to contribute to this very deserving case may send their contributions, no matter how small, either to any member of the gardening press who may be personally known to them, or to either of the well known gentlemen named above, and all such amounts will be immediately acknowledged.

We are particularly gratified by this unity of effort in a most worthy cause, as it is alike a graceful tribute to the memory of Mr. Collins as well as evidence of sympathy with his widow, and of the harmonious manner in which pressmen work together in the discharge of their duties. We commend this project to the attention of all who may not have done something in a direct manner to meet the exigencies of this inexpressibly sad case, and shall rejoice in its success.



THE WEATHER IN LONDON.—The weather in the metropolitan area during the past week has been very varied. On Thursday and Friday of last week sharp frosts were experienced, while on Saturday there was a slight fall of snow. Sunday morning brought a rapid thaw, which, with the exception of a short time in the evening of that day, has been maintained. Monday and Tuesday were dull and damp, and at the time of going to press a light rain was falling, and the weather was very mild.

— **THE WEATHER IN THE NORTH.**—Very severe weather has been experienced in Scotland during the past week. The most serious snowstorm of the last fifteen years has occurred in the North. In the South about 8 inches of snow fell, and the thermometer in one district registered 4° below zero. In the centre of the country the snowfall was slight, and the frost averaged about 21° for three days. On the afternoon of Saturday a change set in. Sunday was bitterly cold with sleety showers. On Monday afternoon and evening rain fell pretty heavily, and Tuesday morning was fair, with the thermometer at 35°.—B. D., *S. Perthshire*.

— **ROYAL HORTICULTURAL SOCIETY—COMMITTEE ON JUDGING.**—We are informed that the Council of the R.H.S. has requested the following gentlemen to act on the proposed Committee on judging at shows (see page 7 of the report, 1894-5), viz., Messrs. Barron, Bennet, Blair, Bunyard, A. Dean, Dunn, Douglas, Findlay, Gordon, Laing, Marshall, McIndoe, Moore, G. Paul, Outram, Shea, Smith of Mentmore, Thomas, D. Thomson, Wilks, and Wright. The first meeting of the Committee will be held at the Society's office, 117, Victoria Street, on Monday 21st, at 2 P.M. The distant members will, we presume, mainly help by correspondence, as they may do most usefully, and it may be expected that other authorities who are specialists may be appealed to as occasion may arise for their co-operation. The work will, of necessity, occupy a considerable amount of time, and must be done well.

— **UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.**—The quarterly meeting of this Society was held on Monday evening last at the Caledonian Hotel, Adelphi, Strand. Mr. Joseph Wheeler presided. Twelve new members were elected, and four others nominated. Two deaths took place during the last month, one being Mr. Charles Collins, who died suddenly on December 26th at Forest Gate Railway Station, and his widow being left in distressed circumstances the Committee granted her £10 from the Benevolent Fund, in addition to the amount standing to her late husband's credit. The other member who died was Mr. Arthur Locke, of Welton, who had been on the sick fund seventeen weeks. The amount standing to his credit will be paid the widow according to rule. The proposed increase in sick pay was discussed, and a requisition signed by members present to call a special meeting in March to alter the rule bearing on the point. The Treasurer was instructed to invest £400 in West Bromwich 3 per cent. Stock, and a very cordial vote of thanks to the Chairman ended the meeting.

— **THE WAKEFIELD PAXTON SOCIETY.**—On Saturday, Jan. 5th, there was a fair attendance of members at the Society's room, and Mr. H. S. Goodyear presided. Mr. J. Eastwood, of Stanley, was the essayist, his subject being "Bees and their Life History." A very beautiful series of limelight lantern views was shown by Mr. Harold Parkin in illustration of the lecture. The microscopic slides showing the marvellous adaptations of bees for the performance of their various functions were specially remarkable. Mr. Eastwood, who is an experienced bee-keeper, very lucidly explained the best methods of bee culture, gathering of swarms, driving, and taking honey. He strongly condemned the cruel and unnecessary practice of killing bees in order to take the honey, and showed how easily the honey may be secured and the stocks of bees preserved through the winter. With a little care and attention bee-keeping might be made very profitable, and there were few hobbies which afforded such delightful opportunities for studying the wonders of Nature. Messrs. Burton, Hardwick, Emmett, and the Chairman took part in a discussion, and afterwards votes of thanks were given to Mr. Eastwood for his lecture, and to Mr. H. Parkin for showing the views.

— **THE WEATHER IN EAST YORKSHIRE.**—Mr. G. Picker informs us that on the 10th inst. the thermometer registered 24° of frost, and on the following morning 25°.

— **THE Société Nationale d'Acclimatation de France** has, we understand, conferred its medal of the first class (*Medaille de Première Classe*) on Mr. J. Simpson, The Gardens, Wortley Hall, for his book entitled "The Wild Rabbit in a New Aspect," published by Messrs. Blackwood & Sons, Edinburgh, some time back.

— **RAINFALL IN CAMBRIDGESHIRE.**—Mr. Arthur Bull, Bernard House, Cottenham, informs us that the rainfall there for the last six months was as follows:—July, 2.29 inches; August, 2.42; Sept. 1.99; October, 2.18; November, 3.94; and December, 1.48 inches, making a total for the year 1894 of 23.05 inches. This is light in comparison with the quantities recorded in many districts last year.

— **AT a recent meeting of the WILLIAMS' MEMORIAL TRUSTEES**, Dr. Masters in the chair, it was decided to offer large silver medals at the following shows to be held during 1895:—Newcastle-on-Tyne, for the most meritorious specimen flowering plant; Richmond, for the best collection of vegetables: Crystal Palace Autumn Fruit show, for the most meritorious collection of fruit; Trentham, for the most meritorious collection of fruit. A sum of 2 guineas was also voted to the fund being raised for the benefit of the Lindley Library.

— **THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY**—At a meeting of the above Society held on January 8th a paper was read on "Insect Pests and their Eradication," by Mr. F. Mason, gardener to A. Smith, Esq., Woodleigh. Mr. Mason described their mode of existence, and the injuries they do to fruit trees and plants. Their attacks on plants, he said, are at times excessive, and can be met with successfully only when means are used that are based on a knowledge of the habits of the injurious species.—F. L. T.

— **THE EAST ANGLIAN HORTICULTURAL CLUB.**—Five years since this Club was instituted for the express purpose of furthering horticultural intercourse amongst its members, and it is now purposed increasing its usefulness by the formation of a lending and reference library. The Club numbers 100 members, and the addition of a library will, it is felt, advance the interests of the Club and add to its membership. Mr. F. Upstone, Exchange Street, Norwich, is working hard to develop this feature by means of gifts, donations, and purchases.

— **ROYAL BOTANIC SOCIETY.**—At a well-attended meeting of the Society, held on Saturday afternoon, a suggestion by Mr. Rubenstein was considered as to the admission of the public to the Gardens on payment. Although out of order as a motion, the suggestion was entertained by the meeting at the instance of the Chairman, Mr. W. Bell Sedgwick, in order that the matter might be discussed, and at the conclusion of the proceedings the suggestion was put to the vote, and lost by a large majority. Three new Fellows were elected, and the nominations of six others read for ballot at the next meeting.

— "OLD SUBSCRIBER" writes:—"Apropos of the paragraph on page 30 on 'A Giant Oak,' where is 'Pillkallen?' And may I also ask, in reference to another paragraph on 'December Weather at Broughty Ferry' (page 32), where is this latter place? because in statistics of the weather it is desirable to know where they emanate from." [Pillkallen is a German town, situated almost on the Baltic borders of Russia. It is only a short distance from Tilsit, on the river Memel, a town renowned for Buonapartie associations. Broughty Ferry is on the Frith of Tay, near Dundee, about fifty miles north of Edinburgh. The Inchcape Rock, on which is built the lighthouse of that name, is adjacent to Broughty Ferry.]

— **PRECOCIOUS VEGETATION.**—The frost came in good time to check exuberant and unseasonable growth on the part of trees and shrubs, but especially Roses. These hardy plants are always amongst the first to break prematurely, hence they perhaps most often come in for a sharp pinch. However, when vegetation is particularly active in one direction it soon becomes so in other things, and much harm may be done through having mild growing weather in midwinter and severe frost in the spring. Now that we have had a spell of frost in midwinter there is reason to hope that undue developments will not again give trouble, although the present wave of cold may be of short duration and soon be followed by one of exceeding mildness. At any rate, without being unduly severe around London, the recent frost was very seasonable, and, therefore, productive of much good. A disaster always follows upon precocious vegetation, whilst winter restfulness is equally productive of safety.—D.

— **MR. C. D. RUDD** has sent the first shipment of fruit (by the latest Cape mail steamer) for the season. It consists solely of Apricots, which were landed in splendid condition.

— **GARDENING APPOINTMENTS.**—Mr. Moxham has succeeded Mr. S. Castle as grower of Grapes and other produce to Messrs. A. & J. Quertier, Ashford Vineries, Fordingbridge, and Mr. Macdonald has succeeded Mr. Moxham as gardener to Admiral Foley at Packham, Fordingbridge. Mr. John Hayes, who has been for some time foreman in Castle Ashby Gardens, has been appointed by the Marquis of Northampton, K.G., to succeed the late Mr. Henry Birch as head gardener.

— **CHISLEHURST GARDENERS' ASSOCIATION.**—On Tuesday evening, January 8th, the members of the Chislehurst Gardeners' Association had a most enjoyable meeting, when Mr. McKercher, Holloway, delivered a very instructive and interesting lecture on "Insectivorous Plants," illustrated with diagrams and specimens of *Sarracenia*, *Nepenthes* and *Drosera*. A hearty vote of thanks was accorded Mr. McKercher, and a hope expressed that they might hear him again at some future time.—R. F.

— **THE DEVON AND EXETER GARDENERS' ASSOCIATION.**—The programme of this Society for the spring of 1895 is now complete. Papers are to be read on "Stove and Greenhouse Flowering Plants," by Mr. G. Lock, Crediton; "Melons and Cucumbers and Their Culture," by Mr. Edwards, Whipton; "Cultivation of Early Vegetables," by Mr. E. Sparks, Pynes Gardens; and "Foliage Plants and Their Culture," by Mr. G. Camp, Culver Gardens. One evening is devoted to short essays by the younger members of the Association, and on March 20th the Society holds its Hyacinth and spring flower show. The last meeting of the session is reserved for a review of the papers read.

— **THE BIRKENHEAD AND DISTRICT GARDENERS' ASSOCIATION.**—The second annual soirée was held on Tuesday, 8th inst., in aid of the funds of the newly formed Gardeners' Mutual Improvement Association. There were over 300 gardeners and friends present, and a most enjoyable evening was spent. The first item of the evening's entertainment was a good dinner, at which His Worship the Mayor (Alderman Thomas Shaw) presided, supported by Mr. James Smith (of the Palm Grove Nurseries) as M.C. The evening's entertainment was a great success, and will result in over £10 being handed over to the funds of the new Association.

— **TORQUAY DISTRICT GARDENERS' ASSOCIATION.**—The above Society held its third annual dinner on Wednesday, January 9th, at the Exeter Hotel, Torquay. Over ninety were present, and the President (Dr. R. Hamilton Ramsay) occupied the chair. The Hon. Secretary (Mr. F. C. Smale) stated, in reply to the toast of the Society, that it had never been in a more flourishing condition than at present, 140 members had joined since the commencement, and the meetings this session were much more numerous attended than formerly. There would be a substantial balance in hand at the end of the session. The evening was a great success, the attendance being much larger than on the two previous similar occasions.—F. C. S.

— **DUNDEE HORTICULTURAL ASSOCIATION.**—The first meeting for the session was held on Tuesday, January 8th, in the Technical Institute. An address was given by the President, Mr. James Simpson, Dalhousie Nurseries, Broughty Ferry, on the "Propagation of Plants." In dealing with this subject, Mr. Simpson considered that this department of horticulture was by far the most important and responsible of the gardener's work. Patience and method were specially required, as well as careful observation in the smallest details, and thoughtful execution of even the simplest operations were most essential to success. Everything should be clean and sweet. Plunging material in the propagating cases should be often changed frequently and kept fresh. The germination of seeds was dealt with, and propagation by cuttings was fully discussed, many important hints to growers being given. The subject of grafting was carefully described, with the best methods to adopt for a successful issue. At the close Mr. Simpson was cordially thanked for his address. The meeting was well attended, and a considerable number of new members were proposed for election. Through the kindness of J. Martin White, Esq., of Balruddery, Patron of the Association, the use of a room has been granted, free of charge, in the Technical Institute for the purpose of holding the meetings of the Association. Mr. White gave a number of handsome volumes on horticulture and other allied subjects as a donation to the Association's library, which is also to be placed in the reading room of the Technical Institute, where any member may spend a quiet hour's reading if he feels inclined.—J. M. C.

— THE ANNUAL DINNER OF MESSRS. WILLS & SEGAR'S EMPLOYEES was held at the Chelsea Town Hall, on January 5th, when upwards of seventy were present. Mr. Wills, in replying to the toast of the firm, said he saw a number of faces who had been working for them since the firm was in its infancy, and who had helped to secure what success had been made.

— BIRMINGHAM GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—On the 7th inst. the annual meeting of this Association was held under the presidency of Mr. W. B. Latham. Mr. A. W. Wills was unanimously re-elected President, and Professor Hillhouse was appointed Vice-President. The whole of the retiring Committee were re-elected with the exception of Mr. W. Earp (late head gardener to Mr. Joseph Chamberlain), the vacancy being filled by Mr. J. Haynes. Mr. W. Gardiner was elected Assistant Librarian, and Mr. W. Eades, the Assistant Secretary, was appointed a member of the Committee.

— SHERBORNE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—The usual monthly meeting of this Society was held on the 9th inst., when there was a good attendance, presided over by Mr. J. H. Dalwood. Mr. J. Pooley read an interesting and instructive paper on "Soils," explaining the different kinds of soil which existed in various parts of the kingdom. Mr. Adam Stewart characterised the paper as a really good one, it dealing with the fundamental principles of the subject, and he hoped the papers which were given in connection with that Society would act as a stimulant in the subjects in which they were so deeply interested.

— SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.—On Saturday last the sixth annual dinner of this Society was held at 4, Old Compton Street, Soho. Mr. J. H. Laing presided, being supported by Mr. Geo. Schneider, Mr. Geo. Nicholson of Kew, Mr. T. W. Sanders, Mr. C. Harman Payne, and a much larger attendance of members than usual. After the Chairman's address, in which he congratulated the Society on its continued prosperity, Mr. Schneider replied, pointing out the valuable services rendered to the Society by the genial Chairman, who had introduced a large number of members and made contributions to the Society's library for which they all felt grateful. Mr. Schneider also expressed pleasure at the appreciation of the Society's work, which the visitors testified by their presence on that occasion, and their health was proposed and very cordially received. Mr. G. Nicholson and Mr. Harman Payne replied in French, expressing their great interest in all that concerned the Society and French horticulture generally, and Mr. T. W. Sanders also bore testimony to the good work the Society had done. It may be useful to mention that the Société Française d'Horticulture de Londres was established to assist young French gardeners in obtaining situations in England, and to do the same for young English gardeners in France, so that they may each gain a wider knowledge of their profession and improve themselves in the two languages. The Society has an excellent library of horticultural works, and its members occupy important positions in all parts of the world.

— LIVERPOOL HORTICULTURAL ASSOCIATION.—On Saturday evening last the seventh annual dinner of members of the above Association was held at the Adelphi Hotel, under the presidency of the Hon. Treasurer, W. Fletcher Rogers, Esq., who was supported by Mr. T. White, Chairman of the Association, and Mr. R. W. Ker. There was a large attendance, including about 120 of the leading gardeners of the district. After the usual loyal toasts Mr. R. W. Ker proposed that of the Liverpool Horticultural Association. In an excellent speech he spoke of the necessity of more vigour being infused into the working, urging the members to seek for more support from the Council, and instead of holding the summer show in Sefton Park to try and secure the enclosed portion near the Botanical Gardens, also to get up a guarantee fund, to which he promised his support, to enable them to bring down one of the Guards' bands, which would give a stimulus to the Association such as it had never before seen. Mr. Ker's remarks met with the greatest approval. Mr. Fletcher Rogers, in dealing with the finances, said he was sure all would be pleased to hear that the funds were in a better position than last season, this he attributed to the fact that there was no spring show. He hoped that all three shows would be held this year, and that they would be prosperous. He also mentioned the beautiful show of Chrysanthemums which were open to the public in Sefton Park, also of Mr. Yates Thompson's munificent gift of a new conservatory, for which he felt all interested in gardening ought to be thankful. After Mr. Ker's speech there was a decided tone of enthusiasm displayed amongst all present for the welfare of the Association.—R. P. R.

— AXMINSTER AND DISTRICT GARDENERS' MUTUAL ASSOCIATION.—The first annual dinner under the new rules took place on Thursday, 10th inst., the Rev. Mr. Newman occupying the chair, with the Secretary (Mr. Chapple) in the vice-chair. After the loyal toasts were honoured, Mr. Hales gave the toast of the evening, "Success to the Society," and referred to the benefits derived from it. He was pleased to hear that the number of members were steadily growing, and hoped that the season coming would be a successful one.

— HALF-HOLIDAYS FOR GARDENERS.—These are certainly becoming more and more popular, and in many large private horticultural establishments all the employés, save those on duty for the time being, are allowed a half-holiday on Saturdays. In public establishments the parks, under the London County Council, have taken a lead in this matter, and now we are informed that the Kew authorities have made a similar departure. There are at present on the Kew staff some forty-four young gardeners employed in various departments—not all in the houses as formerly—and of these eleven will enjoy a Saturday afternoon's relaxation each week, so that each has one afternoon off every four weeks. The half-holidays commenced on Saturday, January 5th, 1895, and are sure to be much appreciated.

— FRUITING OF AN ALLAMANDA.—I see on page 30 a letter from Mr. Ireland, who sends you a fruit of Allamanda, and asks if it is usual for this plant to fruit. If the fruit had been left on the branch till the spring, when the pod was commencing to crack, then the seed sown, I have no doubt there would have been a number of seedlings in the summer. Ten years since I had a plant of *A. Wardleyana* fruited, from which I raised the free flowering and scented Williamsi. I had thirty seeds, and every one germinated. I potted one for myself and another plant was sent to a friend in Westmorland, from whom Mr. Williams procured it. The remaining plants I threw away for want of room. The plant I have fruited four years in succession. Every year I raised one seedling per pod, but no variety is so free as Williamsi. The leaves of the seedlings vary, some being very narrow, others broad.—W. WHITEHEAD.

— ANCIENT SOCIETY OF YORK FLORISTS.—The annual general meeting of the Ancient Society of York Florists was held in the Agricultural Club Chambers, York, on the 8th inst. Mr. A. Simpson presided, and there was a large attendance of members. The minutes of the last annual general meeting were read and confirmed. The Secretary, Mr. J. Lazenby, read the Committee's annual report for the year 1894, of which the following is an extract:—"The year has been exceptionally propitious as regards the operations of the Society. Through the kind efforts of the Society's Chaplain, the Rev. H. Vyvyan, Their Royal Highnesses the Duke and Duchess of York have graciously done us the honour of becoming patrons, as also has the Archbishop of York. There is a considerable increase of subscribing members, the number being 642, and about fifty new names for the coming year, as against 600 last year. The receipts for the year amounted to £555 7s. 11d., and the expenditure having been £519 5s. 6d., there was a surplus on the year's working of £36 2s. 5d., which, added to last year's balance, made a total balance of £199 2s., and a total income of £718 7s. 6d. The usual six shows have been held during the year with very encouraging results. The Chrysanthemum show exceeded all previous records in number of exhibitors and in excellence of exhibits." The report and balance sheet were adopted. Alderman Sir Joseph Terry was re-elected President of the Society. The Rev. H. Vyvyan was unanimously re-elected Chaplain. Lord Mayor of York (Alderman W. McKay), the City Sheriff (Dr. Tempest Anderson, J.P.), and Mr. Robinson were elected Vice-Presidents for the year. Mr. J. Pillmoor was nominated for the office of Junior Steward, and elected. Mr. G. Lamb, Treasurer, and Mr. J. Lazenby, Secretary, were unanimously re-elected to their office. A vote of thanks was proposed to donors of special prizes who had thus afforded liberal aid, which was unanimously carried, it being mentioned that most had renewed their offers, and so evincing their confidence in the management; £70 was voted for prizes be granted to the five minor shows. It was decided that the prize money for the Chrysanthemum show to be held 20th, 21st, and 22nd of November be £150 exclusive of specials. The following gentlemen were elected to form the Committee for the present year:—Messrs. A. Simpson, R. McIntosh, T. E. Abbey, E. Staines, W. Clues, W. L. Appleton, W. Bean, G. Hudson, J. Key, E. Everard, W. Clarke, W. Todd, G. Cowper, J. Rodwell, J. Dawe, J. C. Milburn, W. C. Milburn, and T. Smith. The meeting concluded after a vote of thanks had been accorded to the Chairman.

— **BROWNEA CRAWFORDI.**—This plant is again flowering in the Palm House at Kew, and a few days ago it carried seven huge clusters of deep salmon or rosy-red flowers and numerous unexpanded heads. The terminal clusters are from 6 to 10 inches across, and contain sixty or more flowers each 2 inches long, and the beauty of these is enhanced by the long and conspicuous red stamens, of which each bloom has eleven.

— **THE WEATHER IN CO. DUBLIN.**—Mr. Moore, writing from the Royal Botanic Gardens, Glasnevin, to the "Irish Times," on the 10th inst., says:—"The night of Tuesday last, the 8th inst., was the coldest night registered since 15th December, 1882. On Tuesday last the thermometer, in a regulation screen, fell to 11·6, indicating 20·4° of frost. On the night of December 15th, 1882, the number of degrees of frost registered was 22·4, the thermometer falling to 9·6." Last week also given us the heaviest snowfall since January, 1865. Considerable damage appears to have been done amongst evergreens and Coniferae, to what extent is not yet easy to see. In an open part of the lawn the depth of snow was 17½ inches.—E. K.

— **LAWNS FOR AMERICA.**—With the increasing development of civilisation in the States, there is a pressing demand for lawns such as adorn our country residences and suburban villas; and as the American gardeners find it extremely difficult to raise lawns from seed in many parts, one of their government experimental stations has actually voted a sum approaching £200 to meet the expenses of an expert, who is now on a foraging expedition to this country, and actually taking turves from our old parks and commons—choosing the choicest piece of fine grass he can lay hands on. If reports are correct, he has shipped many heavy loads for the purpose of ultimately putting a verdant surface on the burnt-up face of his sun-cured country. As he has been here before on the same errand, no doubt the initial experiment was successful, or his enthusiasm would not be so great. What next?

— **THE RUSSIAN WINE HARVEST.**—During the last season the Russian wine harvest gave a total yield of 100,000,000 gallons of wine of various qualities, all of which was produced in European Russia, with the exception of 75,000 gallons from Turkestan. The chief wine-growing regions are the Caucasus and Bessarabia. The Caucasian vineyards cover a total area of 230,000 acres, and those of Bessarabia 154,000 acres. The other principal wine-growing districts are the Crimea and the governments of Kherson, Podolia, Yekaterinoslav, the Don country, and Astrachan; but for home consumption and local sale wine is raised in nearly the whole of the southern and south-western governments. In European Russia there are altogether about half a million acres under wine culture. During recent years France has become the largest foreign importer of Russian wines, which she uses chiefly for blending purposes.

— **EXCITING CHASE AFTER A CONVICT.**—The village of Sproughton, near Ipswich, has been the scene of an exciting occurrence. Shortly after one o'clock in the morning of the 9th inst. Mr. C. W. Bragg, the coachman to the Rev. A. Foster-Melliar, having put up his horse on returning home from a party, found a man standing in the henhouse in his cottage garden. He asked the intruder what business he had there, of course, and was promptly knocked down by way of reply, the man then running away. Bragg called for help, and pluckily started in pursuit. His cry of alarm was fortunately heard by a young fellow lodging at his cottage, named Bailey, who is groom to Colonel Woodward, and was at one time in the Gordon Highlanders. In naked feet, with nothing on but shirt and trousers, Bailey soon joined Bragg, and they pursued the man at break-neck speed across a 20-acre field, newly ploughed and hard from the frost. The runaway jumped the hedge on the far side, but fell into the ditch; his pursuers were on him in a twinkling, and a desperate fight followed. Bragg was twice kicked on the head, being thereby rendered nearly insensible, and Bailey was bitten in several places. The last-named was too good a soldier, however, to let his man go, and eventually the postmaster (Mr. Charles Mee) coming to their assistance with a rope, the prisoner's arms and legs were bound, and he was conveyed to the gaol at Ipswich. He was at once identified as a ticket-of-leave man named Soar, who was sent to penal servitude for burglary three or four years ago. On that occasion he gave the police a rare chase, getting away and swimming twice across the river Gipping before he was captured. Bragg is a brave man, and Mr. Foster-Melliar's good helper at Rose shows, and not less brave was the tenacious Bailey. "The wars of the Roses" are as nothing in comparison with this struggle with and victory over a savage burglar.



THE NATIONAL ROSE SOCIETY AND PORTSMOUTH.

WITHOUT intending to enter into the present controversy, I would point out that your correspondent, "J. B.," is in error in saying that "neither Mr. D'Ombraim nor anyone else at the annual meeting said a word on this subject"—i.e., the railway communication with Portsmouth. The question of the selection of the town for the southern show in 1896 was brought up almost at the close of a meeting, which had been long, and not without exciting episodes, and in certain parts of the room a little conversation was going on which may have prevented your correspondent from clearly hearing everything that was said. Certainly remarks concerning the bad cross-country railway communication with Portsmouth reached my ears, but by whom these remarks were made I am not prepared to say. I wish to limit my intervention to the record of this single fact, and to say the subject might well receive the editorial *quictus* now.—ONE WHO WAS PRESENT AT THE MEETING.

WITHOUT taking much notice of your anonymous correspondent, "J. B.," I may say that I can place implicit confidence on those who furnished me with the account of the annual meeting, as they are gentlemen, and men of undoubted probity, position, and intelligence. "J. B.'s" letter is full of statements without any basis, except his own imagination. You, sir, very properly say, "if no official application has been received" (from Portsmouth), that will end the matter." But suppose it is just the other way, what then? You also state that strong language does not strengthen the case, but this is a case where great indignation is felt, and I, for one, must decline to withdraw a word I have written on this subject.—CHARLES J. GRAHAME.

[We have not suggested that Mr. Grahame should withdraw anything, nor certainly do we withdraw one word of our appendage to "J. B.'s" letter on page 36. Taunting remarks, by whomsoever made, are incompatible with harmony of personal feeling, which should prevail even in keen discussions on matters of public interest. Long experience in public controversies has also thoroughly convinced us that language which is "needlessly" strong is *not* the most effective. Either Portsmouth did, or did not, make an application of the nature suggested. "J. B." says distinctly that "nothing official has ever come before the Committee" from Portsmouth; and thereupon asks "Could they (the N.R.S. Committee) possibly have accepted an invitation which has never been given?" Those are definite statements, and are the more remarkable, as following an equally definite statement furnished to us by Mr. Jeans, page 585, December 27th, namely, that one of the Secretaries of the N.R.S. informed him that "the question of place for 1896 was submitted to the annual general meeting, and Reading chosen by an unanimous vote on account of priority of application"—over what application? We are bound also to notice that in the same letter of Mr. Jeans that his friend informed him "the place of the southern show would not be dealt with at the general meeting, but in committee." We should not think of reflecting on the opposite nature of these statements, because we have often known questions brought before a general meeting which were not expected to be discussed there even up to the moment of the meeting being held. But so long as conflicting statements remain unexplained disquietude is bound to prevail. We have no feeling in the matter in dispute whatever, and lean neither to one side nor the other. We have given both sides equal opportunities for expressing their views. It is now clearly in the power of the Secretaries of the N.R.S. to settle the controversy, because they can speak, as no one else can with equal authority, both as to the accuracy, or otherwise, of the statements of "J. B." (who is, of course, convinced of their truth), and their reconciliation with the citations from Mr. Jeans' letter, and these with each other. The case is now in a nutshell, and cannot be very difficult to deal with by the officials. N.B.—Since the foregoing was printed we have received the following explanation from Mr. Mawley. It appears from this letter that both Mr. Jeans and "J. B." were misinformed on questions of procedure; but mistakes are incidents of life. The discussion had better end now, and Portsmouth's turn will no doubt come in time.]

N.R.S. SOUTHERN SHOW IN 1896.

THE leading facts as regards the above exhibition are as follows:—During 1893 applications for holding the Society's southern show in their respective districts in 1894 were received from Reading and Windsor, and ultimately that from Windsor was accepted. In November last the question of the southern show in 1896 was brought before the Committee, and the rival claims of Portsmouth and Reading duly considered. At this meeting Mr. Spittal's two letters to one of the Secretaries were read, no direct application from Portsmouth having up to that time been received. The Committee decided in favour of Reading, and Mr. D'Ombraim was requested to proceed to that town in order to make further enquiries. At the annual general meeting the same question was again brought forward, and the decision of the Committee confirmed. At both meetings, as far as I was able to judge,

there appeared to be an almost unanimous feeling in favour of the show being held at Reading in preference to Portsmouth. No application was received from Portsmouth until November 29th. — EDWARD MAWLEY, *Hon. Secretary*.

NATIONAL ROSE SOCIETY.

WE are requested to publish the following resolution, passed unanimously by the Committee of the National Rose Society on Tuesday, the 15th inst., "That the Committee of the National Rose Society, having had under consideration the statements lately made in the *Journal of Horticulture*, beg to express their unabated confidence in their two Honorary Secretaries, and endorse the action which they have taken as to the fixtures for 1896."

[This is received while our pages are being made up for press, and it settles the whole controversy.]

ROSARIANS' DIFFERENCES.

IF it were not that the discussions which so freely crop up in the pages of the *Journal of Horticulture* in relation to Roses and their exhibitions, evidence so much of the frailty of human nature, many readers might regard them as interesting or amusing. Why association with the Rose should create such singular divergences of opinion even on the most trivial matters as Rose correspondence discloses, is one of those things no "fellah" outside the amateur rosarian circle can understand. I specially note that these sharp and often acrid discussions are shared in by amateur growers and exhibitors alone. Men in the trade wisely and carefully hold aloof. Probably they, consisting so much more largely of practical business men, and perhaps too of philosophers, find nothing to differ about, and prefer to live harmoniously. Somehow it would seem as if the flower was the portion of the trade, and the amateurs enjoyed only the spines. We do not find Chrysanthemum or Dahlia, or Auricula, or Carnation growers girding at each other in the way that rosarians do; and therefore we are driven to the conclusion that it must be the thorn of their favourite flower which excites their temperaments. They appear, too, to make such a great "to do" over small things, that it seems somewhat venturesome to indite a column in the pages of the *Journal* concerning Rose exhibitions or the N.R.S., so I content myself with a "short and sweet" par, or I might be "in for" a "taste of the briar." — AN OUTSIDER.

CURRENT QUESTIONS.

I AM pleased to receive "Gleaner's" apology, though I cannot call it a well-grown specimen, shown in "the most perfect phase of possible beauty." He says (page 37), "There seems to be a certain amount of danger in tilting with men who are under the gentle influence of the Rose." Well, if "tilting" means representing a man as saying something worse than foolish, which happens to be the exact opposite of what he did say ("sorry I spoke" of course referred to my resignation as committeeman), it is well to be reminded that Roses have thorns, though they do not scratch unless assaulted.

It is not necessary to occupy the valuable space of the *Journal of Horticulture* by pointing out the difference of "hearsay" evidence from what is heard with a person's own ears; and the extraordinary paragraphs of "Gleaner" on this subject may be left unanswered.

"J. B.'s" suggestion (page 35) as to the addition of gold medals to the champion trophies is, as the Editorial note says, worthy of consideration. It may, however, be urged that past winners *have* something to show—viz., their names in the list of the N.R.S. Report, and graven on the trophies themselves. And also, that if carried out it would be rather hard on those who are now past winners, particularly, on anyone who, like a great friend of mine, has held one of the trophies once, but sees very little prospect of repeating his triumph. I think that the whole of the value of the gold medal should be deducted from the money prize; and, if this were agreed on, it might be added that any past winner might buy as many gold medals as he had won trophies. This would be fair to all, and would leave little objection to the suggestion offered. — W. R. RAILLEM.

MAY FROSTS.

I WOULD strongly commend to "R. M. D." (page 15) the course of procedure which has already seemed to him the wisest in the case of severe May frost. I think he will find that Mr. Grahame was subsequently inclined to think he had been rather too precipitate. A week of growing weather will often make a considerable difference in the general appearance of the plants; sometimes for the better, but oftener for the worse. Still, it is generally impossible to tell how far the injury has extended till the plants begin to grow again, and a slight stimulant, with plenty of hoeing is desirable, to make the plants start again and show where they are alive, as soon as possible.

The just-formed buds are the most liable to be injured; those that have got hard can stand a little frost, but very few of the buds which are in existence at the time of a frost strong enough to kill any of the leaves are likely to come to any good. The shoots that have not formed buds will be all right if they have not been "stopped"—that is, if they grow again from the extreme tip as they did before—even if several of the leaves have been destroyed. A shoot that has been stopped and breaks from the side buds only is not likely to produce show flowers that season, but it should be cut back to the topmost strong pushing bud, and restricted to that growth only.

I recommend preventive measures by study of the thermometer with

local weather experience; and, when danger signals are clearly displayed, turning out all hands, by lamplight if necessary, to lightly cover with anything or everything that may be handy—muslin, green boughs, or even newspapers. For remedial measures, I quite think, as above, that patience is the only thing for the first week or so. I am not quite certain on this point, and am always ready to learn; but not, in this case only, by experience. — W. R. RAILLEM.

DO MONEY PRIZES TEND TO DEMORALISE?

IN your columns recently, and also in the new issue of the "Rosarian's Year Book," Mr. C. J. Grahame raises the question of the advisability of exhibiting Roses for money prizes—that it tends to demoralise the exhibitors. It seems to me that Mr. Grahame is mistaking a symptom for the disease. The question is a much larger one and altogether different. Nor do I think the symptom to be anything like as bad as he believes it.

My experience as a Rose exhibitor was very short and very pleasant. It extended over some four years, including local shows of more or less importance, and one of the N.R.S., and I am still in touch with the shows of the latter. I never met with anything but kind consideration and assistance at the hands of my fellow exhibitors. They would always advise me as to how to improve my box, would lend me their watering cans in case of need, and, if I were short of time, would help me to stage. This, too, frequently by persons whom I had never met before. The love of the Rose was a sufficient introduction and bond and claim on their services.

Nor was it that they felt my blooms were not to be respected, for, out of the nine boxes I have staged five have won first prizes, two second, and one third. I distinctly did not, under these circumstances, find the competitors, to quote Mr. Grahame, "probably as disagreeable as is possible when prospects are not rosy." This is the first time I have advertised myself, and I could not do it now were it not that the record is an important factor in gauging the goodwill of Rose exhibitors.

I have, however, had a long experience—eighteen years—in a much larger field of competition—rifle shooting. There certain competitions have money prizes; others articles. The "frame of mind," the "discord," referred to by Mr. Grahame were certainly present here as they are in Rose showing, but whether a ten-pound note, or a clock, or a cup was the prize, made not the slightest difference. Nor did the money prize prevent a like show of courtesy to that above referred to. To take only one instance, the last time I shot at Wimbledon I was squadded at 600 yards in the competition for the Queen's prize with a man whom I have never met before or since. Observing that I had no telescope to note the exact position of my shots on the target he offered me his, and we used it alternately throughout. At the end of that competition I had won £5.

No! Exhibitors and competitors have been sore at times and always will be, let the guerdon be what it may. Let pride of position alone be the prize, and the case will not be altered. But the soreness is little more than skin deep, and with nearly everybody soon passes away, and looking deeper we find sincere and hearty greetings whenever and wherever the competitors may meet, and the formation of lasting friendships. Human nature is not so bad as it is painted, and human nature is what Mr. Grahame is tilting at. — ARCANUM.

MUSINGS.

"The time has come to speak of many things."—"Alice in Wonderland.")

SO says the walrus in that charming book both for youngsters and children of a larger growth, and indeed the contents of Nos. 1 and 2 of our *Journal* for 1895 will probably induce many of us, at least those those who may be afflicted with the *cacoëthes scribendi*, to write when they cannot speak. I am not on all points agreed with Mr. C. J. Grahame, although we were fellow tilters at the Rose analysis. I like the *noms de plume*. I like the effort to find out the who's who, and to tack together the writer and his *nom de plume*. I must confess I have failed egregiously in "W. R. Raillem." Why, I know not, certainly not from any bulls in his writings. I had pictured our friend as a resident in the Green Isle. I am glad to find out my mistake, and to learn that "W. R. Raillem" is much nearer home, and so the hope rises that one of these days we may meet and know each other in the flesh. Rosey friends may have their storms and perhaps their thorns, but after all some of my dearest friendships have been made through the queen of flowers, and so I put up willingly with a thorny puncture now and again.

Surely one such letter as those of Mr. A. F. Grace is sufficient to show the necessity of settling what is meant by an amateur. Like "W. R. Raillem," I utterly fail to see that the division into classes by fixing a certain number of plants has anything to do with the rule that an amateur must not sell Roses or buds. I have already hinted at the possibility of this numerical test being evaded, and it seems to me patent that the persons who would evade the selling test, as Mr. A. F. Grace seems to imply many do, are the very persons who would be likely to do the other. What, I would ask, should be the true feelings of a gentleman? Surely not to join a society the rules of which he knows, and then deliberately to set those rules at defiance. I confess that the numerical matter is one that is not quite so easy to settle. I apprehend most of us amateurs, if asked straight off how many plants we possessed, would under-estimate the number—not wilfully perhaps; but, then, in the moment of victory the temptation is greater, and the conqueror is apt enough to lessen the numbers of his conquering troop, and augment those he has vanquished. I was once judging at a Rose exhibition, and chafed the gardener of a friend on exhibiting with

thousands against some competitors with their hundreds. "Oh!" said he, "you are stretching it rather talking of our thousands; we might have 1500 plants." Knowing this to be an absurd estimate, I laughed heartily. Some hours after I was standing near his stand (six) of one variety; they were Merveille de Lyon. I acknowledge I am not a great admirer of this Rose (it is too fond of looking at the judges), and the white is very often too rakish looking—too used up—to suit my taste; but these were grand blooms—perfect, and of course easily first. I was admiring them with some of the other prizewinners in the class, and we agreed that we had never seen a better stand of the Rose. Just at the moment the man came up, and I praised them warmly, saying I had never seen a better lot. To the amusement of my friends, who had also overheard the previous chaff as to the big battalions, he replied, "Well, we ought to be able to show that pretty well, we have 500 plants of it." "Why," I replied, "that is pretty cool; you said just now that you had only about 1500 plants altogether." "Ah! well," he remarked, "we must have more, for we have 500 of that, and the same quantity of A. K. Williams, and several others! 1500 is soon made up." Mr. Grace would doubtless disapprove of one in the trade showing against himself as an amateur; yet why should one regulation stand and the other be set aside—by exhibitors, not by the Committee?

Trophy classes. Well, being only a "little 'un," they are classes I leave to my betters; but I do think the suggestion of "J. B." as to the gold medal in addition to the trophy is sound, and should be carried out in one or other of the methods suggested by him. It is on the principle that holds in many societies, that the president on the conclusion of his year of office should be added to the list of vice-presidents. The great honour has passed away from him, but the halo of the honour hangs about him still for the rest of his life, just as the gold medal would always be a reminder to everyone that the possessor of such medal had been a trophy champion. Certainly I would not omit the trade from similar mementoes.

Our queen of flowers is a thorny beauty, but are her devotees more cantankerous than others? I hope not, and I trust "Gleaner" will alter his judgment, especially as it is a "regret" to him, and learn that the danger of titling with men under a rosey influence is not so very alarming—the thorns do not go deep. Pray induce him to "glean" again. I can assure him there is plenty of hearty good feeling in spite of thorns in the way.—Y. B. A. Z.

REVIEW.

The Book of the Rose. By the Rev. A. FOSTER-MELLIAR, M.A. London: Macmillan & Co.

THREE hundred and thirty pages of matter in fourteen chapters, thirty illustrations save one, excellent paper, and clean easily read print—such in brief is the character of the "Book of the Rose." There are many works on Roses mostly good, and all different. For exhaustiveness Mr. William Paul's bears the Palm, for humorous chattiness Dean Hole's stands alone, while some are severely practical, more or less dry and didactic. Yet there was room for another just such as this, and we shall be very much surprised if the sale does not prove its wide acceptability. It is not a cheap compilation to be glanced through once and put aside, but a work of permanent value to be treasured and studied for the information that it contains. It appears to be a history of the actual work of an earnest and successful rosarian, one who is evidently not afraid of soiling his fingers or scratching his hands if he can develop the greatest attainable beauty in the flower he loves.

The "Book of the Rose" is essentially useful, yet entertainingly written. The author seems to half regret that he has not put more "fun in it." It would have been a pity if he had done so, at the expense of those practical details by which he admits being "overmastered." It is the thoroughness that is stamped on every chapter, the evident desire to be useful in explaining the methods which have proved successful, and pointing out errors for avoidance, that invests the work with value. It is at the same time decidedly readable, and it would have been much less so if so-called "fun" had been sprinkled on every page. There is only one Dean Hole. It was at one time the fashion of writers to try and imitate him, but it was useless. The wishy-washy period of Rose literature thus incited has happily passed away, and we are glad that there is nothing in this latest work on the Rose to lead to its resuscitation.

"The Book of the Rose" is mainly a book for exhibitors, or perhaps it would be more correct to say for those who are or may be animated with the desire to do all that can be accomplished by cultural skill in the production of "glorious Roses," worthy of being honoured with cups and medals by experienced and exacting adjudicators. On this point the author says:—

"I write for enthusiasts, for those who make a regular hobby of their Roses, and think of them as fondly and almost as fully in January as in June. There are not a few such, even among amateurs, in all ranks, and some of them, much handicapped perhaps by soil, situation, or circumstances, still retain their ardour, though not meeting with much success. The man of business, who rises at daybreak to attend to his Roses before his day's work in the town; who is quite prepared if necessary to go out with a good lantern on a November night to seize a favourable condition of soil for planting at once some newly arrived standards or dwarfs; and who later in the winter will turn out in the snow after dark to give some little extra protection that may be required for his beds; this is the sort of man for me, and for the Rose as well."

And our author would like the "man" to grow his own Roses—that is, do all that he can for them with his own hands, not paying someone else to do the thinking and working, and then the owner glorying in the blooms as if he (and not the other man) had produced them. When he actually does this, only having assistance for heavy work and in times of pressure, then does he reach the ideal; for, to cite again:—

"He will thus become a real amateur, a true son of Adam, and genuine brother of the back-ache, with many thorns in his fingers and rough and hardened hands; but his Roses will be truly his own, he will have won them, and under the Creator will actually have made them himself. And not only will they seem to him brighter and purer and sweeter than any other Roses, but he will probably find, in comparison and competition, that they are better than those of his brother amateurs who do not personally attend to their plants; and it will be a great thought for him that other far richer men may have grand and glorious gardens, but that he in his humble little plot with his own hands raises some of the finest Roses in England."

After useful references to "situations and soil" for Roses, also instructions on planting, follows an excellent chapter on manures. In recommending that no manure be mixed in the upper layer of soil, but all to be placed from 8 to 24 inches down, and below all the roots when planted, the author does not think many Rose growers will agree with him, so he provides for them, and well too, in subsequent instructions. Some growers of Roses believe in the practice of trenching the ground and placing all the manure at the bottom of the trenches, as they find when the roots get down into it the plants grow strongly and produce fine blooms. Our author does not bury manure deeply for the roots to penetrate, as he is all for keeping them near the surface (page 53), there to remain for the rising moisture (by capillary attraction) bringing to them the virtues of the manure in solution for appropriation, as the bulbs are fed in Holland. Undoubtedly the bulbs benefit by the enriched moisture as it rises through the soil, but the roots do not "remain" near the surface for it, but go right down into the manure, even to the depth of 4 feet, and the roots of Roses have a habit of doing the same. This our author appears to know very well, because he objects to placing manure and soil in layers "after the fashion of a sandwich," because of the bottom layer of manure "getting the roots too deep" (page 53). That some of the virtues of deeply buried manure are brought upwards in the rising moisture is no doubt quite true, but that the roots of plants will wait near the surface for it is rather a new notion. Most of the virtues of deeply buried manure would be washed into the subsoil, if porous, and lost to the plants if the roots did not go down and imbibe it, thus preventing its escape. This is an interesting and also an important subject, and a searcher after truth such as our author is must be one of the first to desire that his views should be fairly examined.

Very trite are his remarks on chemical manures as founded on the analysis of the ashes of the Rose, which is given, showing that potash lime and potash are the dominant constituents; but as the author correctly says:—

"The first thing to remember is that there is one most important item not found in ash analysis, and that is nitrogen, for which in a chemical formula the uninitiated must look for the words 'nitrate' or 'ammonia.' Nitrogen is the stimulant which gives life to the whole, like the spark of fire which gives such mighty power to the loaded cannon, or, to use more humble imagery, the penny in the slot which sets the whole elaborated machinery in motion. Mere nitrates, such as nitrate of soda, show immediate and wonderful results on unexhausted land, when all the plant wants is a start; but it is like drawing a cheque upon a bank, a capital way of supplying the needful as long as the bank is replenished accordingly, but otherwise not a mode of raising money likely to be successful for long; so the nitrate makes the mineral stores, such as potash and phosphates, available if they be there, but cannot replace them."

Not less interesting are his remarks and deductions relative to influences that the minerals mentioned exert on the wood, the roots, and the flowers of the Rose; while sound are the remarks on liquid manures. On this subject one point is brought out that is overlooked by not a few gardeners. We are told "it is wrong" to conclude that "because a plant is the strongest in the bed it therefore wants the least of the liquid manure; on the contrary, it wants, because it can use, the most."

Our author is evidently a thinking man as well as a close observer. This is apparent in the opening paragraphs in the able chapter on pruning. In pruning for exhibition blooms he tells us the whole of his dwarf plants in beds are every year "swept clean away nearly to the level of the ground." Why? Because

"By watching an unpruned Rose tree, either wild or cultivated, it will be found that the first strong shoot flowers well the second season, but gets weaker at the extremity in a year or two, and another strong shoot starts considerably lower down or even from the very base of the plant, and this soon absorbs the majority of the sap, and will eventually starve the original shoot, and be itself thus starved in succession by another. A Rose in a natural state has thus every year some branches which are becoming weakened by the fresh young shoots growing out below them. This is one of the principal reasons why pruning is necessary. A Rose is not a tree to grow onwards and upwards, but a plant, which in the natural course every year or two forms fresh channels for the majority of the sap, and thus causes the branches and twigs above the new shoots to diminish in vitality. It seems better, therefore, to speak of Rose plants than of Rose trees, especially since standards are now less used, and so many new varieties are dwarf in their growth."

The question of stocks is fully, but not too fully, discussed, and illustrations given, which admirably display the character of the roots of the three kinds most generally employed—namely, those raised from Briar cuttings, Manetti cuttings, and seedling Briar stocks, the former

generally finding the most favour with Mr. Foster-Melliar, for the reasons given in the book. He seems to reason on everything, and tries to prove most things in practice, and thus it is that his pages are so useful and so fresh.

Following the chapters referred to are others on "Pests," and how to "catch 'em" by the author's favourite insecticide—finger and thumb; "Roses Under Glass," very well done; "Propagation," fully treated; "Manners and Customs" of varieties, the most complete and accurate descriptions of Roses ever written; "Selections of Varieties" for rosarians, with the inevitable "Calendar of Operations," but commendably concise in under a dozen pages of readable reminders of when the various details explained in the book should be carried out.

The photographic illustrations are very beautiful, from Mrs. Orpen's shower bouquet as the frontispiece to the same lady's buttonhole bouquet at the end; and not less so are the portraits of several exhibition blooms, the varieties of which would be distinguishable without the names.

By favour of the publishers we give one illustration from this "Book of the Rose," not because it is the most beautiful by any means, but for two other reasons—firstly, because the author has not ignored picturesque garden Roses, and, secondly, because we happen to be

notable volume, and probably no one will be found to quarrel with the author for his use of the definite article in its title.

Perhaps the feature which, more than any other, differentiates this book from its compeers is Chapter XII. (which besides being the most important is the longest in the book), in which the author, taking up the N.R.S. Catalogue of exhibition Roses, gives a careful and detailed account of the "manners and customs" of every variety. The habit and peculiarities of growth and leaf and flower are all treated of; the beauties of each flower extolled; and then, in many cases, the author goes on with—"but," and there follows a faithful pointing out of the defects, either of flowering or growth, or both, of these varieties, so that both sides of the picture are presented in each case. After the matter of this chapter first appeared as notes in the *Journal of Horticulture* I wrote to the author that no more valuable contribution to our Rose literature had appeared during the past ten years, and now that it is presented in its permanent form there is no reason to revise this judgment. The Tea and Noisette classes are treated with the same fulness as their H.P. brethren, and it will certainly not be the fault of the author if in future beginners in Rose culture, or any others, are found wearying themselves and cumbering their gardens with varieties which give a satisfactory return, say once in a septenate. The illustra-



FIG. 9.—AN AYRSHIRE WEEPING ROSE.

acquainted with the specimen in question, which was described in our columns a few years ago. If it is not the finest standard Rose in Britain it is, we suspect, the finest budded, and grown to its present dimensions, by a farmer—one of those men who are never satisfied unless he does all things well that he undertakes, and thus he has a seat in one "local parliament" in his district, and his accomplished helpmeet in another. We allude to Mr. and Mrs. Ismay Fisher of Sturton, near Brigg, Lincolnshire. The present dimensions of the Rose are—height, 12 feet; diameter, 15 feet; and the circumference of the Briar stem, 12 inches. As will be perceived the specimen is faultless in shape, and when covered with thousands of delicately tinted flowers it is a picturesque object on the lawn. It is the Ayrshire Rose Ruga.

We have only one more remark in reference to the work of Mr. Foster-Melliar, and it is this:—All persons who love the Queen of the Summer that holds sway throughout his pages, and who desire to see her charms displayed in fullest beauty in gardens or exhibitions, should not be happy till they severally and individually own this extremely attractive and emphatically useful "Book of the Rose."

A CRITIQUE.

UNTIL the autumn of last year the rosarian had for his guidance (apart from a number of small popular handbooks) two great works upon his favourite flower—viz., "The Rose Garden," by Mr. W. Paul; and "A Book About Roses," by Dean Hole. But now a third has been added to these in the work under notice, and in future, when the ardent amateur refers to his authorities as Paul, Hole, and Foster-Melliar, he will mention them in this order with reference only to priority of publication; for it would be an invidious selection indeed which should assign their order of merit. The book is undoubtedly a valuable and

tions, showing typical blooms of fourteen different varieties, are also an important adjunct to this chapter and to the book.

Our author will not at once carry all practitioners with him in all that he advances; but then, perhaps, he does not desire to do so. Certainly he has not sacrificed any of his opinions in an attempt to accomplish this. This is especially the case in the chapter on manures, where some decidedly novel ideas are presented. After all these years of heavy annual top-dressings of solid manure, in all the Rose gardens of the country, it is a little startling to be told in effect that the practice is useless, and that all our labour and material have been wasted. And after all we have read and heard and been taught as to the desirability of keeping roots near the surface, and that the best way of doing so was to provide the manurial sustenance there, it comes almost as a shock to be told that the only proper place for the manure is at a depth of 2 feet below the roots of the trees, and that even the old "sandwich" method of manure and soil and manure and soil has nothing to recommend it. But with a grower so successful at the exhibition table as Mr. Foster-Melliar it is useless to dispute the correctness of this, or any other, detail of practice. To every possible objection he has—"np his sleeve"—the unanswerable reply, "Look at my results." And some of us would probably find it almost as difficult to explain away that formidable list of successes, gained (presumably) under the disputed treatment, as to account for our own failures with more orthodox methods. The details as to the time and manner of applying certain separate elements, in accordance with the advancing requirements of the trees, and the prevailing conditions of the atmosphere are most carefully and elaborately given.

These are the most prominent chapters in this valuable work, or at least they are all to which space will allow of detailed reference; but

the chapters upon Stocks (and in this connection the illustration showing the differing styles of roots upon Briar cutting, seedling Briar, and Manetti is a feature as useful as it is novel), Propagation, Exhibiting, and other matters will be found full of useful information, not merely to the beginner but to the more experienced grower, and all bear the impress of the hand of one who, before sitting in the study to write the book, has gone into the field and the garden and done the work. The only hindrance to the widespread popularity of the book is the peculiar price. However, all Rose growers must read the book.—J. B.

master. He came south, and took charge of the gardens at Wrotham Park, Barnet, more than fifty years ago, and displayed consummate ability in the conduct of all the departments. Flowers, fruit, and vegetables were alike grown well, but he achieved the greatest fame in Grape-growing, especially perhaps in the renovation of old Vines, in which work he was a pioneer.

Mr. Thomson eventually took charge of the Duke of Buccleuch's gardens at Dalkeith, and while there he wrote his admirable treatise on Vine culture. This proved the foundation of the success of many a



FIG. 10.—MR. WILLIAM THOMSON.

DEATH OF MR. WILLIAM THOMSON.

It is our sorrowful duty to announce the death of one of the greatest practical horticulturists of the century, Mr. William Thomson of Clovenfords, in his eighty-first year. Mr. Thomson was in his usual health, mentally and physically vigorous till the 2nd inst., when he slipped on a piece of ice and fell heavily, receiving a severe shaking. A chill followed, pneumonia supervened, and he expired on Saturday morning last, the 12th inst.

We have no details of Mr. Thomson's early life, but think he received part of his training as a gardener at Bothwell Castle, and lived to become one of the foremost exponents of the art of which he was a

gardener in the production of the princely fruit, and the name of Mr. William Thomson became an honoured one throughout the country. In 1890 we referred to Mr. Thomson and his work as follows in referring to the last edition of his treatise:—

"The veteran cultivator and effective teacher, Mr. William Thomson of Clovenfords, has been growing Grapes such as have seldom, if ever, been surpassed, between fifty and sixty years, and twenty-eight years have elapsed since the first edition appeared of his 'Practical Treatise on the Grape Vine' (Blackwood). Practical it undoubtedly is, as it is a record plainly and clearly told of his actual practice and its excellent results. It is impossible to estimate the amount of good that has been done in the Grape-growing world by the publication of this work.

Gardeners all over the kingdom have been made wiser by its teaching, and Grape-growing was never so well understood before as it became after its appearance."

We at the same time published his portrait, which we now reproduce, and he had changed but slightly in appearance since the photograph was taken. As we are preparing for press we find the following record of Mr. Thomson's life and work in the "Scotsman":—

"Mr. Thomson's ancestors were located for generations in the Border county of Roxburgh, where Mr. Thomson was born in 1814, but his father having been appointed land steward on the estate of Maclaune of Lochbuie early in this century, the family were brought up in the Island of Mull. There Mr. Thomson served his apprenticeship as a gardener under Mr. Wilson, afterwards wood manager on the Penrhyn estates in North Wales. Leaving his island home, Mr. Thomson acquired experience in his profession, like all young gardeners of his time, in serving as journeyman and foreman in various good gardens in Scotland, ultimately being employed in the latter capacity under Mr. Andrew Turnbull at Bothwell, the seat of the Earl of Home in Lanarkshire. This place was then one of the most famed in Scotland as a school for horticulture, and especially for the cultivation of hardwooded greenhouse plants; the collection of Cape Heaths being one of the very finest in this country, and remained so until the death of Mr. Turnbull about a decade ago.

"Young Thomson reaped the full advantage of serving under such a distinguished horticulturist as Mr. Turnbull, and when he had completed his service at Bothwell Castle he was appointed gardener to the Hon. Mr. Byng, at Wrotham Park, in Hertfordshire, about the year 1839. There he remained for sixteen years, and acquired great experience as a horticulturist as well as a contributor to horticultural literature, then in its infancy. During that period he was well known at the great horticultural shows, then in the hey-day of their fame, in and around London, taking an active part as an exhibitor and a judge, and acquiring considerable reputation as an authority on Grapes and their successful cultivation. On the retirement of Mr. Charles McIntosh from the charge of the Duke of Buccleuch's gardens at Dalkeith in 1855 Mr. Thomson was appointed his successor, and in that prominent position in the gardening world he fully maintained his skill and reputation as a leading horticulturist of the times. As editor for some years of the "Scottish Gardener," he did much to stimulate a taste for gardening among the community, and especially among his professional brethren, on his favourite topic, the cultivation of the Grape Vine. While at Dalkeith he also wrote a manual on the Vine and its cultivation, which is still a trustworthy authority on the subject.

"Always a keen and successful competitor at the shows of the Edinburgh Horticultural Society and of the Royal Caledonian Horticultural Society, where he won many prizes for the excellence of his exhibits, he turned his attention to the raising of new varieties of fruits and flowers, and in the latter years of his career at Dalkeith he was successful in raising the two well-known varieties of white Grapes—the Duke of Buccleuch, a large, luscious, golden-berried variety, much relished by those who prefer a mild-flavoured, juicy Grape; and the Duchess of Buccleuch, a handsome hunched variety, with smallish golden berries of the richest flavour. He also raised two other seedling Grapes which appeared in commerce while he was at Dalkeith—viz., Golden Champion and White Lady Downe's, but neither is much grown at the present time.

"Mr. Thomson remained for sixteen years at Dalkeith, leaving there in 1871, when he established the Tweed Vineyard at Clovenfords, near Galashiels, the fame of which has spread far and wide among Grape growers. In latter years he has been assisted by his sons in the business at Clovenfords, where, besides the growing of Grapes on a large scale, a fine business has been created in Orchids and other high-class plants, as well as in an excellent artificial manure, to which much of Mr. Thomson's success as a Grape grower is attributed. Since he established himself at Clovenfords Mr. Thomson created around him quite a little town of industry, where formerly there was a mere hamlet, with the usual country inn, and blacksmith and joiner's shop of the neighbourhood. He has all along taken a keen interest in horticultural affairs, and was a regular attendant at the shows of the Royal Caledonian Horticultural Society, where his well-known robust figure with white hat was always a centre of rally to a crowd of his gardening friends and the general horticultural public. At his leisure time he was a frequent contributor to the "Scotsman" of interesting articles on various topics, from the cultivation of Grapes to the rearing of poultry and other useful arts—so wide was his knowledge and comprehensive his mind. Mr. Thomson was an elder in the *quoad sacra* parish church of Caddonfoot, and was a member of the parish School Board."

Mr. Thomson's remains were interred at Caddonfoot on Wednesday, 16th inst. He leaves two daughters, most estimable ladies, and one son, Mr. John Thomson, who has taken a leading part in the Clovenfords business for some time. The late Mr. William Thomson was a man of bright intelligence, sturdy independence, great knowledge, as well as strong common sense, and his name is deeply graven on the tablets of horticulture.

FLORAL FACTS AND FANCIES.—7.

SOME unknown individual chose for the motto of the Mistletoe flower, "I surmount all obstacles," by no means inappropriate when the habit of the plant is regarded, since it grows and thrives in the face of difficulties which seem likely to extinguish its early life. At the outset—under natural conditions—its seeds depend upon the agency of birds for their distribution, and during the first three years the growth of the plant is very slow. Then, as the male and female flowers are separate, fertilisation is brought about either by the wind, or more probably by insect visitors. Bees are drawn to them, it is stated, because they have a peculiar honey-like odour; also they are conspicuous. But we may reckon that not one person

in ten thousand of those not living in the districts where the Mistletoe is grown has ever seen the flower.

On the host of traditions connected with the plant itself we must not dwell. It was revered by many Pagan nations, regarded as a protection from wounds and the influences of evil spirits, also a cure for various diseases, though it has been queried lately whether the Mistletoe of our British ancestors was the species familiar to us. Some think it must have been *Loranthus europæus*, which frequently grows on the Oak; *Viscum album* seldom. From a long list of trees upon which it has been found, there is proof that its favourites are the Apple, Hawthorn, Black Poplar, and Willow. Just now, when Christmas decorations are being removed, there is an opportunity to experiment with Mistletoe berries. It is only necessary to place each berry in some crack or depression in the bark, and cover it with a bit of bass to protect it from birds. In the West of England some folks have successfully grown the plant upon Hawthorn hedges, or as an adornment along avenues of Limes and Poplars.

To a very different plant belongs a significance similar to that of the Mistletoe. It is a native of hot climates, well known in Egypt, Greece, and Italy, and which thrives with us; but it is not often seen in gardens. The *Acanthus* was thought to represent genius overcoming difficulties, because, like some other plants, it has a power of adapting itself to circumstances, and when checked from extending in one direction strikes out upon a new course. It was the growth of an *Acanthus* around a flat tile in a manner rather unusual that suggested to Callimachus the idea of the Corinthian column; and from the extensive use made of it by the ancients when drawing designs on furniture, vases, and robes, the *Acanthus* has also become a symbol of art in action. Old Pliny recommended the plant as an ornament for lawns and borders, our poet Milton introduces it amongst those that shaded the bower of Eve.

Probably few people now, in decorating churches and houses at the seasons of Christmas and new year, pay any attention to the significance of the foliage and flowers that are used; but by our ancestors much regard was given to this. Not having at command, however, any plants growing under shelter in winter, their choice was necessarily limited, and even of evergreens they had but few. Prized because it was a holy or sacred tree, the Holly claimed a conspicuous place which is still given to it; besides, from a peculiarity of habit, it stood as an emblem of "foresight." Clinging to a tree even in decay, the Ivy represented "friendship" unshaken by misfortune, and its arms have sustained many an ancient wall during centuries. A line in one of the quaint old carols highly commends the Ivy, "For all bale she is bliss," how we do not exactly know. A wreath of it was also deemed a fitting tribute of honour to bestow upon a poet. In Greece, at one time, the bridegroom held, at the wedding ceremony, a bough of Ivy, representing unshaken attachment. Rosemary, frequently worn at funerals as an emblem of fidelity, and of remembrance, too, according to Shakespeare, was sometimes used in church decoration, fresh or dried, for the sake of its fragrance, if not for its meaning. Some old writers state that this plant was a symbol of "repentance" or sorrow as well.

Relying chiefly for decoration on the plants of woods and lanes, our ancestors gathered the wild Clematis (the "Traveller's Joy"), conspicuous by its feathery sprays, as a winter adornment, and it is even yet employed in decoration, though it is emblematic of "artifice." The reason is, that beggars at one time used to produce sores by means of the acrid juice, which is similar in effect to that of the Buttercups or Crowfoots. But the handsome exotic with purple flowers is taken to represent "beauty," though the evergreen variety is, oddly enough, a symbol of "poverty." With the Clematis, the long runners of the Woody Nightshade or Bitter Sweet, sometimes green in winter, were occasionally mingled—a plant that is regarded as an emblem of truth, because, if chewed, the juice is at first bitter; but a sensation of sweetness follows. More, as Dr. Tyas adds, it has a preference for shady places, and is like truth, because she now and then abides at the bottom of a well! To us, probably, an array of Hazel rods would have no particular significance, but when the catkins began to appear on them they were formerly cut, to be displayed as the tokens of "reconciliation" and "peace" amongst Christians. The idea came from the ancients, for the wonderful caduceus, or magic rod of the deity Mercury, was supposed to be of hazel wood. According to the legend, he and Apollo came to the human race while all were savages, and, after the god of music had softened with divine harmony the hearts of men, Mercury, by the influence of his rod, prompted brotherly kindness, the love of country, and the desire for commerce, as being a bond which would finally unite all nations.

We find that certain groups of plants have uncomplimentary characteristics attached to most of them. Thus, the Hellebores,

one species of which, under its name of Christmas Rose, is a welcome flower at this season, represent "backbiting" or slander; and their relative, the Winter Aconite, with its green frills and yellow centre, tells of "misanthropy." The Columbine, a native plant, of which we have some pretty garden varieties, stands for an emblem of "folly," through a fancied resemblance of the petals to a fool's cap and bells. That was not the only fancy it suggested, for the English name reminds us the flower was also likened to a nest of young doves, and the Latin one indicates that to some it suggested the talons of an eagle. Chaucer, the father of English poetry, speaks admiringly of the Columbine; and Spenser remarks upon its variety of colour. In this family, however, the Monk's Hood, a flower which might be wisely banished from our gardens because of its poisonous qualities, represents "chivalry," the hood having also a resemblance to a knight's helmet. Amongst the flowers that were carefully gathered by our forefathers in summer, to be kept for display in winter, the Amaranth was conspicuous, sacred to love or friendship, and a symbol of immortality.—J. R. S. C.

PEELING VINES.

MANY of your middle-aged readers will bear witness that I have been a strenuous opposer of stripping Vines of their bark; possibly some of them will even give me credit for making some barbarian pause before he continued the cruel practice. What will my friends say then when I confess that last winter I stripped all my Vines of every particle of outer bark? At any rate there is this advantage, I can say something about both sides of the question. Then what is the excuse for this acknowledged barbarity?

For some years now I have been very much troubled with red spider. It may be from mismanagement, but certainly it is not the result of laziness or lack of attention. I have had to do with this enemy on several occasions before I undertook my present charge, but I could generally manage to dislodge it before the season was out, and start the following spring with a clean bill of health. But now it is different. Not only does the detested little thing take possession of indoor plants, but it also claims in warm seasons many of the common weeds in the hedgerows and neglected spots, especially Nettles and Bindweeds.

I think the lightness of our soil has something to do with it, and when I say that before the physical condition of our Vine borders was changed by adding a large amount of clay, they had often to be watered twice a week during the summer, while those at Longleat would go with advantage without water for three weeks at a time. It will be seen there is a considerable difference. The latter also have 10 inches of drainage entirely across the house, while those I am now dealing with have no more drainage than a ploughed field, in fact only one drain pipe through each border.

But to return to the spider. During 1893, after dressing the stems in the winter with petroleum and other things thought to be obnoxious to animal life (we cannot dress them thoroughly in the autumn while the leaves are green, or the thing would be simple enough, because the fruit is always in the way of that), painting and reglazing the house, besides removing everything likely to harbour insect life, we found in the early summer that the enemy again showed a very bold front. Every leaf in two large compartments was sponged on both sides with soapy water four times during that memorable summer, but although we worked as those only work who intend to win, I must confess that the spider was the victor, and many of the leaves were rendered useless when they were wanted to give the finishing touch to the Grapes.

After pruning and dosing the stems rather heavily we started searching for the enemy's winter quarters. Loose bark was stripped off, but nothing could be seen. Then we proceeded further, and with the handle of a budding knife a commencement was made to take off carefully everything to the inner bark, and then we found the enemy in force mostly in the axils between the spurs and the main rod—not eggs, but bright scarlet fellows snugly laid up for the winter where neither cold nor damp could reach them. We then determined to proceed, and after stripping the poor Vines of their jackets they were operated on with scrubbing brush and soapy water. I am happy to say that some of the Vines have not had a red spider on them since, and we are encouraged to hope that this season, as there is as yet no rough bark on the stems, we can complete the victory.

So much for the spiders, now what about the effects of the operation on the Vines? Well, they started vigorously, and looked very promising, so much so that I began to think that perhaps after all the stripping was not quite such a bad thing as I had imagined. But as growth proceeded and the weather became warmer it was seen that the leaves which were large as usual showed signs of flagging. I forgot to say that the stems were dressed with

a paint made of clay, softsoap, soot, and water. This was to shade them, as well as to make them distasteful to insect life.

The flagging grew worse. Black Hamburgs and Gros Colmans showed it the most. We gave some of the stems a thick dressing of clay and cow manure, but it made no difference, and they did not seem to really recover before stoning time. Of course, this flagging told on the size of the berries, and possibly had the season been hot and dry like 1893 it would have had a still more marked effect. The Grapes mostly coloured and finished very well, but the loss of weight was considerable.

I think under the circumstances it was best to take off the bark, but I trust I shall never have to do such a thing again. Most of the Vines were ten years old, and had stems thicker than a man's wrist. I daresay with weakly grown Vines, such as have shoots and leaves only half or perhaps a third the size of mine, the effect would not be so marked. These have not such a large amount of stored up material to start with in the spring, consequently they make a weaker start, and when the time comes for them to commence drawing supplies from the roots their wants are not so great as Vines possessing a greater amount of vigour.—WILLIAM TAYLOR.

I was glad to see Mr. Charman's note (page 29) with regard to cleaning Vines, and hope that someone will respond who can give us some useful information. I have been much interested in the notes by "R. P. R." on Mr. Craven's work. He does not appear to be troubled with mealy bug, or he would find that peeling was a necessity, however much he might be against it on principle. I should like to see a note from someone who has tried the gas tar mixture for mealy bug, to ascertain whether it has been successful, and if so, how it is made and applied.—D. R.

I DOUBT if peeling the canes during the cleaning process is so detrimental to the well-being of the Vine as Mr. Craven (page 6) would lead one to suppose. The best Grape grower I know personally is in the habit of taking every particle of bark off, as he is much troubled with mealy bug, and I have seen him go so far as to take the scale off the eyes if he thought one of the enemy had escaped. Nor did he think it necessary to employ only his experienced men, as the garden labourers used to take part in the general operation; and I think I can say without fear of contradiction, and I am sure Mr. Iggulden and Mr. Austin will bear me out, or anyone else who has visited the Bath and Bristol shows, when I say that for finish, size of bunch and berry, few better examples are shown anywhere than are those at the foregoing places by Mr. Nash of Badminton.

I had the pleasure of looking round this much-improved garden last September, and was very much struck with his magnificent Alicantes and Muscats. When I say he beat that veteran exhibitor, Mr. Chaffin (gardener, Mr. Taylor), readers will be able to form an idea what they were like. I was surprised to see the inside borders covered about 2 inches deep with soft gravel, which Mr. Nash assured me—providing the borders were full of roots—was a capital thing, as it kept the houses cool during the summer months.—WM. POTTS, *The Grove Gardens*.

I REGRET that Mr. Craven (page 6), has taken my remarks in the light of being a "severe criticism" of his article on page 535. Mr. H. Charman in his remarks on page 29 has put the object of my remarks in a nutshell, which I trust will be carried out. Mr. Craven also wants my credentials. Does he not know that there is many a gardener who grows good Grapes which are never seen on exhibition tables by the desire of their owners? Mr. Craven is fortunately privileged to show, and myself and other readers of the Journal rejoice in his success, and I for one would like to give him a fraternal shake of the hand. Well, brother Craven, my right to ask a question through the pages of the Journal (with the Editor's permission, which I have never known him refuse), is that I have been a reader of its pages for upwards of sixteen years, and an occasional contributor as well. As to my ability as a gardener that is quite safe in the custody of my employer. I trust this subject of cleaning Vines will be taken up by other growers, and some up to date opinions expressed. I trust, Mr. Editor, you will not pass a severe judgment on me when I say I pass on the Journal to my young men in the bothies, who are anxiously anticipating a discussion on this subject. In doing so I am following the example of a good gardener, who is still growing good Grapes.—ERICA.

[Every gardener ought to help the young men under him in the best way he can, and they should give the best possible services in return.]

THE PROPOSED NATIONAL VEGETABLE EXHIBITION. REPORT OF THE PROVISIONAL COMMITTEE.

THIS report was presented to the General Committee at a meeting held at the Royal Aquarium, January 15th, 1895.

In accordance with a notice kindly inserted in the horticultural papers, a meeting of persons interested in the proposal to organise a National Exhibition of Vegetables during the present year was held at the Crystal Palace on September 29th last, and was presided over by Mr. Henry Balderson. A small provisional Committee consisting of Messrs. R. Dean, G. Gordon, G. Wythes, B. Wylne, J. Wright, and

J. Hudson, with Mr. Balderson as Treasurer, and A. Dean as Secretary, was appointed to make certain preliminary inquiries and arrangements, and report later to a meeting of the General Committee.

The first step taken was to issue 100 copies of a circular inviting co-operation: These were sent out to well known seed trade houses, nurserymen, amateurs, gardeners, market gardeners and others. In response came about seventy replies, all favourable, some promising pecuniary support. The Committee felt that this result justified farther procedure, and the next step taken was to seek an interview with the General Manager of the Crystal Palace with respect to the universal desire expressed that the show might be held there. The interview was accorded, but the result was disappointing. The General Manager could not give any encouragement to the proposal, as an African exhibition is expected to occupy the usual available space at the Palace next summer and autumn.

Baffled in that direction the Committee empowered Messrs. R. Dean and B. Wynne to interview the General Manager and Directors of the Royal Westminster Aquarium, and these eventually agreed to furnish all the space possible, including tabling, also publication, for the proposed show, and give a donation of £10 towards expenses; the show to last three days, and to be held during the second week in September next—a very suitable and acceptable time. These proposals the Provisional Committee agreed to accept, subject to the approval of the General Committee, and also to the determination being arrived at to hold the show. The Royal Aquarium does not offer the illimitable space of the Crystal Palace, but it is at least far more accessible, and is exceedingly central. Still farther, of all horticultural exhibitions held in or about London, those held at the Royal Aquarium always receive the fullest mention in the general press, a matter of some importance to those taking part in the exhibition.

On the strength of this arrangement the Committee agreed not only to convene this meeting, for the privilege of holding which the Committee desire to offer the General Manager of the Royal Aquarium grateful thanks; but also to rough draft a suitable schedule of classes and prizes. This was accordingly prepared, revised by the Committee, and placed in Mr. H. M. Pollet's hands to print. That gentleman, through his manager, kindly undertook to furnish a dozen slip copies of the same when set up, for distribution, amongst some of the leading seed firms favourable to the exhibition, with the request that they would kindly consent to give the prizes in one or more classes.

It was hoped that in this very practical way it would eventually be possible to ascertain to what extent the seed trade might be depended upon to furnish that financial help without which the exhibition would become impracticable. The results, so far, may be briefly stated. Messrs. Sutton & Sons, of Reading, declined on the ground that their promise of help was practically conditional on the show being held at the Crystal Palace. Mr. C. Fidler, of Reading, replied by offering all the prizes in Classes 4, £7 10s.; 16, £3 17s.; 19, £3 17s.—a total of £15 4s., a most generous offer that merits warmest thanks. Messrs. Hurst & Sons declined to give prizes on the ground that, as a wholesale house, they would not be justified in occupying ground properly belonging to the retail trade. Messrs. Carter, Page, & Co., London Wall, have promised prizes. Messrs. Harrison & Sons, Leicester, have promised all the prizes in Class 18—£3 17s. Messrs. J. Laing & Sons, of Forest Hill, were the first seed firm to hail with approbation the proposed show and promise assistance. Messrs. Cannell & Sons, Swanley, are giving the matter consideration, and will no doubt provide prizes if the exhibition is otherwise well supported. Messrs. W. Johnson & Sons, Boston, have kindly offered 2 guineas, to be given in prizes as the Committee may determine, and if cash runs short would be willing to increase that sum. Messrs. Jas. Carter & Co. have written to say that their principal is at present from home through ill health, but they hope to offer some prizes. Messrs. Dobbie & Sons have written to intimate that their southern representative (Mr. Fyfe) would attend the meeting. The schedule as drafted contains a sum of about £160 in prizes.

It is computed that to meet expenditure incidental to the publication of schedules, entry cards, postage, stationery, advertisements in gardening papers, certain exhibition expenses, Judges' lunch, &c., that a sum of at least £50 will be needed beyond the actual sum required for prizes. To meet this there is the sum of £10 offered by the Aquarium Company, and about £10 already promised in smaller amounts by various members of the General Committee. Practically altogether to meet an expenditure of at least £200, the amount promised is roughly £40; it is therefore for the meeting to determine how far it may be advisable to proceed, or otherwise. The Committee think that it should be practicable to raise another £20 to £25 by obtaining advertisements for the schedule, by payment of entrance fees by exhibitors, and by letting certain spaces on the ground floor for tabling to seed houses desirous of making displays of produce. It need hardly be said that the most generous donors of prizes would be entitled to the first consideration in such case.

These are the chief results of the efforts that have been put forth by the Provisional Committee. It now remains for the meeting to determine whether the proposed exhibition shall be proceeded with. If it be so determined, then the schedule of classes as printed must be adopted, an Executive Committee of a representative character elected to carry out the project to a successful issue, and there must be so large a number of prizes guaranteed as to render the work of the Executive comparatively easy.—ALEXANDER DEAN, *Sec. pro tem.*

[Mr. A. Dean announced that about another £12 had been received towards the prizes and general funds, bringing the amount to £52, Mr.

Dean at the same time tendering his resignation, which, after much discussion, was accepted with regret. Mr. E. Molyneux, Swanmore Park Gardens, Bishop's Waltham, consented to act as Secretary until another meeting of the Committee had been held, and in the meantime undertook to take all possible steps to secure the balance of the amount needed to make the show a success, and it was decided that when Mr. Molyneux had done his utmost in the matter he should call a meeting if possible on the same day as a Drill Hall show was being held. The meeting then, after passing a vote of thanks to Mr. H. Briscoe Ironsides for presiding, was adjourned.]

SEASONABLE WORK.

WHEN the ground is hard with frost, and the atmosphere is free from mist, is pure and bracing, there are few vocations that are more productive of enjoyment than is gardening. Very pleasant indeed, if protected by rough clothing and leather gloves, is it to be amongst the trees and thin out branches; work that always requires to be done early where practicable, but which, all the same, is very unpleasant work when the trees are wet and slimy and the ground is soft and saturated. When the ground is hard then it is very enjoyable. To perform all the thinning, then the faggoting and clearing away may be somewhat laborious and rough work, but then it is in frosty weather so exhilarating and enjoyable. The appetite earned by such labour amply repays for the roughness of the work, and when there has been collected a good store of all sorts of vegetable refuse that has become half decomposed, what exceedingly healthful pleasure is there found in taking advantage of the hard frost to wheel this refuse on to the ground and spread it about beneath the trees and bushes, that later it may be forked in.

There are some gardens in which animal manure is so abundant that little thought is taken with regard to vegetable accumulations. That is, however, an unfrequent condition of things, and generally vegetable refuse that will decay is collected and stored—weeds, trimmings, refuse, anything—and if this be treated with sewage, also when turned occasionally on the approach of winter, well dressed with soot, it is surprising what a valuable manurial compound is provided, and how specially useful it is to dig about fruit trees and bushes.

It is surprising also how much vegetable matter may be accumulated in this way during a year, and how useful it becomes for dressing in the winter. It is not in every garden where decayed tree leaves are too numerous, but even these do not furnish the same variety of plant food that is found when something of everything is accumulated and utilised.—AN OLD HAND.

APPEAL COURTS VERSUS JUDGES.

I NOTE what "C. K., *Gargannock*," says (page 34) on his court of appeal. Oh, dear! a generation ago I suggested this in your pages in the matter of poultry, and got properly laughed at for the suggestion. All the same, I still believe it would save many untoward affairs. It is agreed, I imagine, by all that a glaring mistake on the part of judges greatly lessens the *éclat* of an exhibition. Unless an exhibitor has a very great command over himself he is apt, and perhaps not unnaturally, to use rather strong language, not, as Rev. A. Cheales observes, quite ecclesiastical. It would be a good thing all round to avoid these. Such errors, for instance, as "C. K." notes at the Royal Caledonian Horticultural show. I suppose that the very best judges do occasionally make glaring errors that a tyro would detect. They are not always in the same condition for work, and there is also a possibility of error which has nothing whatever to do with the judging. Who cannot see that it is quite possible that the judge, who is putting down the numbers of the exhibitors, may be a little distraught at the moment and put down a wrong one? Should there be no such exhibitor's number in the class the secretary detects the error, but should there be such a number, then that number and the exhibitor marked by it becomes the prizewinner. Now, if before a card were delivered to the attendant satellite in waiting for the judge's awards it were first given to another judge ready in waiting, such errors might be set straight, and as he would glance over the awards at the same time any glaring error would cause him to call the appointed judges aside, and ask whether such decision was their intention. I do not think it would be wise to allow exhibitors in such appeal, say, to "claim" first prize. Let them, after depositing a fixed amount, ask to have the class rejudged by another judge, who, if disagreeing with the awards, should then confer with the original judges. Something of this kind of appeal is now permitted in most rifle competitions on payment of a deposit, which is forfeited if no error has been made; but I still recollect, and sometimes smart over the memory, of hitting the target, which was seen to hit by a telescope, but the marker marked not, and being registered a miss I lost £15.—SHOOTER.

THE request for the appointment of courts of appeal from the decision of judges is doubtless based on the famous declaration, "I appeal from Phillip drunk to Phillip sober," the inference being that when judges give awards not to the liking of certain exhibitors they are drunk with bias, whilst the reserve court of judges must of necessity be composed of impartial men. Does not that strike us as being too ridiculous? There are many of us who have had very wide experience in judging who have heard very little indeed of these whines and complaints on the one hand, or of the dreadfully immoral nature of some

judges on the other. A precious compliment is paid to judges when it is proposed to have their decisions supervised, and perhaps altered, by another body of, probably, in no sense superior men. If this body of reserve judges be superior in knowledge and more virtuous why not engage them to act as the primary judges at once?

What a miserable lack of common knowledge must prevail in those localities where judges are selected by committees and then are capable of making awards entirely at variance with common sense! One cannot help concluding but that such dreadful things must exist chiefly in the imagination of some disappointed competitor rather than in reality. If mistakes are made, and some are, they almost always arise from an error of judgment in looking at things from a different standpoint, but very rarely indeed through sheer ignorance, and still rarer from wilful dishonesty. It must be remembered that if ever such decisions are given that the executive which selected the judges is as much to blame as are the judges themselves; and if thus capable of making such blunders in selecting their first court of judges, how can they be fitted to select the court of appeal judges?

Anyone who has watched the results of appeals in our law courts must often have been puzzled and confounded. A court of two judges decide one way. A court of three judges reverse that decision, yet a higher court of some four or five judges reverse the later decision, and that being the final one is of necessity accepted, but there is absolutely no proof as to what might have happened were there still a fourth court of appeal to give a decision. The fact is, so long as there are fresh courts to be consulted so long will decisions be overturned.

Obviously in horticulture, as indeed in all things submitted to competition at exhibitions, courts of appeal are utterly impracticable and impossible. Let the best men obtainable be employed as judges, and let their names be published in the schedule, then will it be open to any person to refuse to submit his products to the decisions of these men if he chooses. If on the other hand he does, then he has no course but to honourably abide by and accept their awards.—A. D.

CROWEA SALIGNA MAJOR.

A FEW years ago most good collections of hardwooded plants contained one or more Croweas, but such is not the case at present, it being the exception rather than the rule to see them. This is very unfortunate, as they are most useful and of the greatest floriferousness, blooms being seen at almost all times of the year. One of the finest varieties is *C. saligna major*, of which a spray is represented by the engraving (fig. 11). It is a form of the species *C. saligna*, which is a very useful, free-flowering and strong-growing plant; but the individual flowers are not so large as the variety named above. Another form, also with large flowers, is named *stricta*; but the colour is much lighter, being a pale delicate pink, while in *C. saligna major* it is a rich deep rose. The temperature of an ordinary greenhouse suits the Croweas very well, and they are easily grown plants, succeeding in ordinary fertile soil in well-drained pots.

HEAVY APPLES—FOUR SILVER MEDALS FOR ONE DISH.

UNDER the "Posthumous Notes" of a much-lamented writer, on page 6, reference is made to the Peasgood's Nonesuch Apples that I exhibited from Wells Palace Gardens. I am very pleased, as suggested, to give a few particulars about the tree and fruit, also to enclose a photograph of the tree, such as it is. Ten years ago I procured this tree in a small state with other sorts. As we had a long wall near the Palace moat, against which other kinds of fruit did not flourish, it occurred to me that the position was too cold for the more tender fruits, I therefore planted the Apples. Stations very much larger than usual were prepared, and a compost of half old lime rubbish, the other half consisting principally of burnt refuse, good turfy loam not being obtainable. In 1887 the tree bore a few Apples. In 1888 its fruits secured the first prize at Wells, Street, Taunton, Exeter, and Bristol. Several prizes were taken at smaller shows onwards till 1892, when first honours were secured at Wells, Street, Weston-super-Mare, and Exeter. In 1893 our Apples were first at Wells, also at Bath, winning a silver medal at Bath. During the same year they won a silver medal at the Royal Aquarium, the Banksian medal at the Royal Horticultural Society, and silver medal at the Forestry Exhibition (Earl's Court), or four medals for the same dish of Apples. The tree has been well looked after, watered in dry weather, mulched in spring with manure, and twice in the summer a good sprinkling of nitrate of soda was given, with occasional applications of stable manure. The fruit was remarkable for high colour, and although last autumn was so dull and wet the Apples were as highly coloured as we ever had them. One Apple turned the scale at 22½ ounces, with a crop of fifty-two fruit similar in size and shape. The tree is trained fan-shaped, similarly to a Peach, but the branches are very much wider apart than is customary in training Peach trees.—J. B. PAYNE, *Willsbridge, near Bristol*.

[Though the Apples referred to are not the heaviest on record, we have no recollection of one dish of Apples gathered from one tree winning four medals, and we suspect this is a "record" triumph. The photograph represents an informally trained tree, with wall space

visible enough between the branches. All the leaves were thus exposed to the direct action of light, and this with a good fibrous rooting system, encouraged by mulching, also generous feeding, brought about the gratifying results, or in other words sound culture brought its reward. Mr. Payne has recently left Wells, and the following is what we read in the "Western Gazette" about him. "During his long sojourn of eighteen years as head gardener at the Palace, Mr. Payne made many friends. His skill as a first class gardener is undoubted, and it was due to him in a great measure that the Chrysanthemum show was started. For six consecutive years he also managed to take the first prize for groups, and many other first prizes besides. He has also acted at other shows as judge, and his awards have always been found



FIG. 11.—CROWEA SALIGNA MAJOR.

sound. Under his care the Palace gardens and grounds were kept in perfect condition." Mr. Payne has certainly displayed sound cultural skill in the production of the deservedly honoured Apples in question.]

LIME.

IN reply to "Inquirer"—viz., lime (page 16), as most gardeners know the lime could be slaked in large heaps as well as in small ones, providing a sufficient quantity of water were present. In asking this question, did it not occur to "Inquirer" that if the lime were slaked in one large heap it would be much more difficult to move and spread (owing to its dusty character) than if put on the land in small heaps?

"Inquirer" thinks that lime should not be slaked before being put on the land; it would be interesting to know how he would apply it (owing to its lumpy nature when brought direct from the kiln) if it were not slaked previous to use? He also asks, "Is it (slaked lime) of any greater power or value than chalk?" Yes, considerably, for they are entirely different from each other, the former being a hydrate, the latter a carbonate of lime. The hydrate is able to decompose the organic

matter in soils, a property possessed by chalk only to a very small extent. Hydrated lime has the power of uniting with the same amount of carbon dioxide as quicklime to form carbonate of lime, by this I mean that weight for weight the quicklime would take more carbon dioxide than the hydrate; but if we took two equal amounts of quicklime, slaked the one, and not the other, they would then each be capable of uniting with the same volume of carbon dioxide, but hydrated lime is not quite so caustic in its properties as quicklime, consequently it would take longer for the hydrate to accomplish this chemical union.

"Inquirer" goes on to say, "I apparently propound a new doctrine, that lime is *per se* (by itself) a soil fertiliser." I think that this shows that "Inquirer's" reading has not been of a very scientific nature, or he would have seen explained the part lime takes as a plant food, for without lime is present no plants will grow in any kind of soil. As most writers and teachers of agriculture describe its action fully, it would be well for him to look this matter up, and he will see that lime is looked on in agriculture, not as an insect destroyer, but as a valuable plant food. I should like to know how much lime we should want to apply to land to kill such insects as wireworms and some of the chrysalids? I have never seen sufficient dressings used to kill the above insects, and I think it is practically impossible to do so. The micro forms of insect life (so called by "Inquirer"), those he wishes to protect from injury, are not, as a matter of fact, insects, but belong to a group of fungi known as the Schizomycetes, and belong to the vegetable kingdom.

When bodies chemically unite heat is formed (this is well illustrated when water is put on lime), hence the remark "that lime burns the soil," for when lime is put on soils containing organic matter (which generally consists of carbon dioxide, water, and ammonia) they decompose it, uniting it with the carbon dioxide to form a carbonate; this we may term a process of slow burning. Many chemical changes take place when lime is applied to soils which do not concern us now.

I think we may assume that lime decomposes the organic matter, which is part of the insects' food, and so drives them away to parts unlimed, and we rid ourselves to some extent of these insect pests; such insects as slugs and caterpillars may be destroyed if lime comes in direct contact with them. If the Editor will allow I will give a more complete account of the action of lime on soils, and its use as a plant food.—W. D., Turnford, Herts.

[The Editor will willingly admit the extended notes suggested for the information of "Inquirer" and many other readers of the *Journal of Horticulture*.]

ORNAMENTAL BASKETS.

PERHAPS nothing adds more to the furnishing of the stove, green house, or conservatory than a variety of well-furnished baskets suspended from the roof, and where decorations are largely carried on those who are in the habit of using them will amply testify to their usefulness in adding an air of finish and gracefulness to drawing-room decoration.

In choosing specimens for basket culture endeavours should be made to select only such plants as are light and elegant in growth, anything stiff or formal looking entirely out of place under these circumstances. For the benefit of anyone uninitiated in the art of basket culture perhaps the following notes will prove beneficial. Wire baskets of all sizes and shapes are easily obtained, but round bowl-shaped ones of medium size are generally used. The interior of the basket should first be lined with stiff growing moss, such as is often found under Beech trees, with the green side outwards, and then filled with suitable soil prior to planting.

When grown in baskets for summer use there is nothing more useful than *Selaginella uncinata*, which is known to almost everyone. Its graceful trailing habit makes it particularly adaptable for this purpose, and if grown in a shady position, protected from the strong rays of the sun, the bluish green tint of its foliage is very charming, changing as autumn approaches to a bright golden colour. Owing to its deciduous habit it should be kept in a cool greenhouse during the winter months. Another useful acquisition is *Pteris serrulata*. The fronds of this Fern are of a light green colour, long, pendulous, and very graceful for ornamental baskets. *P. cretica* is also suitable, being a distinct variety, with fronds upwards of a foot long. Among the *Adiantums* both *cuneatum* and *gracillimum* are very suitable, but perhaps even more so is *A. caudatum*. It is light and elegant, with fronds about a foot long. *Cheilanthes spectabilis*, a native of Brazil, forms a charming object for this purpose, being an evergreen variety, and in every way acceptable. *Woodwardia orientalis* is well worthy of mention, with graceful fronds ranging from 2 to 4 feet long, from the upper surface of which springs a profusion of bulbiform plants.

In spite of their deciduous habits both *Davallia canariensis* and *D. bullata* are charming. Of naturally wandering habits, the fronds are of a rich shining green, rising from a creeping caudex covered with reddish-brown scales, and makes them, without doubt, among the prettiest of East Indian Ferns. *Isolepis gracilis* and *Sibthorpia europæa* are also useful for basket cultivation, and cuttings of *Tradescantia* placed underneath the baskets add considerably to the elegance and effect.

If flowering plants are desired, *Achimenes* are amongst the most useful for summer use. The best method is to place the roots in shallow boxes to start, and when they are a few inches high prick them in over the surface and all round the outside of the basket, which will quickly become furnished and form a pleasing appearance when covered with bloom. *Saxifraga sarmentosa* is a charming plant for cultivation in

baskets, its trailing habits, profuseness of growth, and the elegant beauty of its simple white flowers, all being recommendations for this purpose. Ivy-leaved *Pelargoniums*, Canary Creepers, *Fuchsias* of drooping habit, *Rex* and *Tuberous-rooted Begonias*, *Marguerites*, and many other plants may also be employed with advantage.—G. HOLLINGWORTH, *Alton Towers*.



JAPANESE UP TO DATE.

IN continuing the analysis of the Japanese Chrysanthemums from page 24 of our last issue we present the selections for the twenty-four and twelve, and these will be found interesting, as showing the wide differences in the opinions of our leading growers. The selections for twelve new varieties and twelve decorative must be deferred to a future issue.

TWENTY-FOUR JAPANESE.

70	Vivian Morel	4	Mrs. Dr. Ward
70	Charles Davis	4	W. G. Newett
69	Mlle. Thérèse Rey	4	Silver King
67	Edwin Molyneux	3	Mons. Ad. Giroud
60	Col. W. B. Smith	3	Edwin Lonsdale
58	Mrs. C. H. Payne	3	Alberic Lunden
57	Sunflower	3	Lady E. Saunders
57	G. C. Schwabe	3	Thomas Wilkins
56	Mlle. Marie Hoste	2	Duchess of Wellington
50	Etoile de Lyon	2	Mrs. E. G. Hill
49	Florence Davis	2	Mrs. E. G. Hubbuck
47	President Borel	2	The Tribune
45	Stanstead White	2	Beauty of Exmouth
43	Duke of York	2	Mrs. E. Beckett
42	Viscountess Hambledon	2	W. H. Lincoln Improved
40	Miss Dorothy Shea	2	W. H. Atkinson
40	William Seward	2	Mrs. E. D. Adams
38	W. H. Lincoln	2	Mrs. Bruce Findlay
36	Louise	2	R. C. Kingston
32	Avalanche	2	Good Gracious
29	Niveus	2	Vice-President Audiguier
27	Robert Owen	2	Gloire du Rocher
27	William Tricker	2	J. S. Dibben
23	Waban	1	Comtesse de Galbert
		1	Mrs. J. Thompson
20	Mrs. Falconer Jameson	1	Frank Wells
20	Primrose League	1	J. P. Kendall
19	Lord Brooke	1	Elmir D. Smith
19	Mons. Panckoucke	1	Mrs. Airdrie
16	Rose Wynne	1	Louis Boehmer
16	Charles Blick	1	Mrs. A. Hardy
16	Boule d'Or	1	Bouquet des Dames
15	Mrs. E. W. Clarke	1	T. W. Sanders
15	Madame C. Molin	1	Madame Calvat
14	Commandant Blusset	1	Mrs. R. J. Hamill
13	Mrs. W. H. Lees	1	Miss Rose Shutter
13	Duchess of York	1	Mrs. G. J. Beer
13	Golden Gate	1	Henri Jacotot fils
12	Madame Carnot	1	Lizzie Cartledge
12	Wilfred Marshall	1	Miss M. Scott
12	Princess May	1	Princess Victoria
12	Eda Prass	1	J. Agate
10	L'Isère	1	J. Délaux
10	Beauty of Castlewood	1	A. H. Neve
8	International	1	Directeur Tisserand
8	G. W. Childs	1	C. Harman Payne
8	H. L. Sunderbruch	1	Mons. E. A. Carrière
8	Golden Wedding	1	Silver Cloud
8	Miss Maggie Blenkiron	1	Madame Isaac
8	Amos Perry	1	White Plume
7	Souvenir de Petite Amie	1	Mrs. E. S. Trafford
7	Mons. Bernard	1	Vice-President Calvat
7	Charles Shrimpton	1	Challenge
7	Madame Octavie Mirbeau	1	Beauté Toulousaine
7	W. W. Coles	1	T. Tricker
6	Col. Chase	1	Mrs. C. E. Shea
6	Madame Charles Capitant	1	Philadelphia
6	Préfet Robert	1	The Queen
6	John Shrimpton	1	Mrs. F. L. Ames
5	Miss Anna Hartshorn	1	Mrs. Libbie Allen
5	Madame Cambon	1	Mr. H. Broomhead
5	Madame M. Ricard	1	Violet Rose
5	Madame Edouard Rey	1	Mrs. Whittle
5	Violetta	1	Mrs. G. Dittich
5	Madame Ad. Chatin	1	Pearl Beauty
5	Le Prince du Bois	1	Eva Knowles
4	Mrs. C. W. Wheeler	1	Kentish Yellow
4	Autumn Tints	1	Mrs. P. Blair
4	Van den Heede	1	W. H. Fowler
4	Puritan	1	E. L. Jamieson
4	Lilian B. Bird	1	Mrs. Geo. Gordon
4	Excelsior		

VOTES FOR TWELVE VARIETIES.

69 Vivand Morel	3 Eda Praes
63 Charles Davis	3 Madame M. Ricaut
62 E. Molyneux	3 Mrs. F. Jameson
61 Mdle. Thérèse Rey	3 Avalanche
41 Sunflower	2 John Shrimpton
38 Col. W. B. Smith	2 T. Wilkins
34 Mdle. Marie Hoste	2 Amos Perry
32 G. C. Schwabe	2 W. W. Coles
27 Stanstead White	2 Madame Octavie Mirbeau
27 Florence Davis	1 International
26 Viscountess Hambledon	1 Mariame A. Giroud
25 Mrs. C. Harman Payne	1 Violetta
	1 Madame Ad. Chatin
23 Duke of York	1 W. H. Fowler
20 Miss Dorothy Shea	1 Van den Heede
18 W. Seward	1 Mrs. E. G. Hill
17 President Borel	1 Mrs. E. G. Hubbuck
17 Etoile de Lyon	1 Princess May
17 W. H. Lincoln	1 Lady E. Saunders
13 Robert Owen	1 Princess Victoria
11 Mons. Panckoucke	1 W. H. Lincoln Improved
10 Niveus	1 Autumn Tints
10 Duchess of York	1 C. Shrimpton
9 Louise	1 Miss Maggie Blenkiron
9 Rose Wynne	1 Mrs. C. W. Wheeler
9 Waban	1 Excelsior
8 Madame Carnot	1 Madame C. Capitant
7 Lord Brooke	1 Mrs. Dr. Ward
7 Boule d'Or	1 Duchess of Wellington
7 Wilfred Marshall	1 Mr. H. Broomhead
6 L'Isère	1 Silver King
6 Primrose League	1 Mrs. Bruce Findlay
6 William Tricker	1 Challenge
5 Mrs. W. H. Lees	1 Lilian B. Bird
5 Madame C. Molin	1 Madame Cambon
5 C. Blick	1 Mrs. F. L. Ames
4 Commandant Blusset	1 Puritan
3 Mrs. E. W. Clarke	1 Good Gracious
3 Colonel Chase	1 Directeur Tisserand
3 Golden Gate	1 Madame Isaac
3 H. L. Sunderbruch	1 Louis Boehmer
3 Golden Wedding	1 Mons. Bernard
3 Beauty of Castlewood	1 C. Harman Payne

EUPHORBIA JACQUINÆFLORA.

THIS charming and graceful winter flowering plant is not cultivated to the extent it deserves. Its slender but erect growing habit, with racemes of intense scarlet flowers arching over in natural form, set off by the profusion of bronzy green leaves, make a very pleasing object.

It is of easy culture, but requires very careful attention. After flowering dry off the old plants, shortening the growths ready to start again early in March. Numbers of young shoots are quickly produced, which for propagating purposes must be taken off close to the stem when about 4 inches long and placed five or six in a 3-inch pot. The compost should be of a light sandy nature, and the pots after the insertion of the cuttings may be placed in a close propagating frame where a good bottom heat is maintained. When well rooted gradually harden off, keeping the young plants well up to the light. As the young plants attain strength they must be shifted into well-drained 54-sized pots. The soil now should consist of three parts good turfy loam, one part thoroughly decomposed manure and leaf mould, with sufficient sand and old mortar rubbish to keep the soil porous. A temperature from 55° to 65° will be found most suitable for the plants at this stage.

When the pots are well filled with roots another transfer to 6½-inch pots is desirable, and these will be large enough to make good useful plants either for decorating or cutting purposes. After the plants have made sufficient growth to necessitate tying place one stick in the centre of the pot and attach the shoots lightly so as to allow the blooms to hang naturally and gracefully. This plant also succeeds well planted out in a well drained border, in a light and sunny position, where an equable temperature is at command. If well treated it will make abundance of growth and produce numbers of flowers. The most important detail in the cultivation is careful watering. If water is used too freely the leaves turn a sickly colour and fall, leaving only unsightly plants. When the pots are well filled with roots an occasional application of soot or liquid manure will greatly assist the development of the flowers.—C. H. H.

MR. R. D. BLACKMORE AND HIS CRITICS.

ALLOW me to make a few remarks on the statement of "A. D." in your last issue in respect to the fruit-growing of Mr. R. D. Blackmore. He there says it is a "mistake of regarding that eminent writer's fruit references seriously." That may be "A. D.'s" opinion, but I and a large number of others do take these references seriously. "A. D." states that Mr. R. D. Blackmore "invests the subject with an air of romance." Does he? There is nothing in this way, I think, when he simply gives the prices he makes and the losses he has incurred. It must be admitted there is something fascinating in the very words "fruit-growing." They lead one into visions of trees covered with bloom, and to be succeeded by numbers of beautiful and highly coloured fruit.

From what I glean, people generally think all that they have to do is to plant, to wait for the time of bearing, gather the fruit, and reap the reward in the shape of profits; but then there is the selling and "the prices." Mr. R. D. Blackmore does not complain of his crops, but the money they realise in the markets. "A. D." has asserted that after all Mr. R. D. Blackmore's experience in growing fruit that he does not grow it well. Meeting one of the best fruit growers of the day, and one who also frequently acts as judge at the large flower and fruit shows, I asked his opinion of Mr. R. D. Blackmore's fruit, and the growing of it. His reply was, it was "very good, and his trees well managed." This fully coincided with my own conclusions, and also that of others; therefore it is the price that is beating Mr. Blackmore.

Your correspondent further says Mr. R. D. Blackmore was not noted as a fruit grower and of good knowledge of fruit. Why, then, was he selected for one of the Fruit Committee of the Royal Horticultural Society? It is well known that before Mr. R. D. Blackmore wrote of his losses he was quoted and lauded for what he was doing. Now that he treads on the ground of others nothing is too bad for him, and why? Because he told the truth, the simple truth.

Then it is asserted that Mr. R. D. Blackmore "is far from being regarded as a practical grower of fruit for sale." He began by trying to make a living by it, and he has now had forty years' experience. Surely, there is something "practical" in all this. Again, he is described as a fruit experimentalist. Mr. R. D. Blackmore certainly has tried various sorts of Pears, but only two small trees of a sort, and even all these did not turn out worthless, but of this nothing to the extent "A. D." wishes others to believe, and which happily they do not. Then the soil is alleged as being bad, on cold London clay, instead of which the ground is good, with a natural drainage, being 3 feet of loam on gravel. Now as to the fruit, Mr. R. D. Blackmore has grown "Pitmastons" on his standards weighing over a pound each, with Doyenné du Comice of 14 ozs., and the varieties principally in full bearing are good market kinds, Williams' Bon Chrétien, Doyenné du Comice, Beurré Hardy, Louise Bonne of Jersey, Souvenir de Congrès, Marie Louise, and others. Mr. Blackmore's fruit ground at Teddington is 10½ acres.—H.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 15TH.

THE first meeting at the Drill Hall on Tuesday last did not bring a very large muster of either flowers and fruits, but the quality throughout was very good. Orchids were seen in fair numbers, but the exhibits for the Floral Committee were very few.

FRUIT COMMITTEE.—Present: Philip Crowley, Esq. (in the chair); with Dr. Hogg, and Messrs. T. F. Rivers, G. Bunyard, T. J. Saltmarsh, H. J. Pearson, Jos. Cheal, J. H. Veitch, G. W. Cummins, W. Pope, A. Dean, C. Ross, J. A. Laing, W. Bates, J. Hudson, G. Wythes, F. Q. Lane, J. Smith, G. Reynolds, and R. Fife.

Messrs. J. Cheal & Sons, Lowfield Nurseries, Crawley, staged a collection of Apples, all in excellent condition. Among the most prominent were Lord Derby, Warner's King, Frogmore Prolific, The Queen, Cox's Pomona, King of Pippins, Col. Vaughan, Emperor Alexander, and Golden Noble. A few Pears, including Catillac, Duchesse de Nemours, and Verulam, were staged by this firm (silver Knightian medal).

The stand arranged by Messrs. J. Laing & Sons, Forest Hill, was very interesting, and comprised forty dishes of Apples in distinct varieties. Bismarck, Striped Beefing, Lord Derby, Alfriston, Mère de Ménage, Beauty of Kent, Emperor Alexander, Golden Spire, Wellington, and Flower of Kent were particularly conspicuous (silver Banksian medal). Mr. W. Gradwell, 4, Manor Road, Tottenham, sent sticks of Tottenham Early, but no award was made. A dish of Tomatoes was shown by Mr. J. Gray, Anglesey, North Wales, these also being passed.

FLORAL COMMITTEE.—Present: W. Marshall, Esq., in the chair; with the Rev. H. H. D'Ombrian and Messrs. J. Fraser, O. Thomas, J. Laing, H. Herbst, R. Dean, C. T. Druery, H. B. May, J. H. Fitt, G. Stevens, W. Bain, J. Jennings, J. D. Pawle, H. Cannell, Chas. Jeffries, C. E. Pearson, C. E. Shez, C. Blick, H. Briscoe-Ironside, E. Beckett, and H. J. Jones.

The most prominent exhibit for the Floral Committee was that of Messrs. Sutton & Sons, Reading, and which comprised Primulas and Cyclamens. The range of colour seen amongst the Primulas was very great, and included whites, blues, reds, and pinks. The double varieties were Alba Magnifica, a new variety, well named; Heliotrope, Rosy Queen, Carnation Flake, and Double Blue; while the singles were represented by Grenadier, Giant Pink, Giant Rosy Queen (award of merit), Brilliant Rose, and Pearl. An award of merit was accorded to this firm for their strain of Cyclamen Salmon Queen. All the plants in this exhibit were splendidly grown, and the flowers of the highest quality (silver Flora medal).

Messrs. H. Cannell & Sons, Swanley, sent a few plants and flowers of Chinese Primulas, including many of their well-known varieties. The same firm also showed fine blooms of Cinerarias and spikes of Canna Queen Charlotte.

A plant of Pteris tremula Howelli was shown by Mr. H. Howell, Queen's Nursery, Hammersmith. The utility of Chrysanthemum L. Canning was well shown by the freely flowered plants sent by Mr. Owen Thomas, Royal Gardens, Windsor (award of merit).

Messrs. W. Paul & Son, Waltham Cross, sent a handsome plant of *Rhododendron ponticum foliis purpureis* (first-class certificate, see below). An award of merit was accorded for *Chrysanthemum Janette Sheaham*, staged by Mr. D. Sheaham, Wimbledon, which is described below. Plants of *Nicotiana affinis variegata* with its showy leafage were staged by Messrs. J. Laing & Sons, Forest Hill, as also were a few Ferns and Palms.

Messrs. Collins Bros. & Gabriel, Waterloo Road, sent plants of Carnation James Collins, and Mr. J. May, Summit, New Jersey, blooms of Rose Mrs. Pierpoint Morgan, for which he received an award of merit. *Lachenalia quadricolor maculata*, from Mr. F. W. Moore, Glasnevin Botanic Garden, was awarded a first-class certificate, while *Dermatobotrys Saundersi*, from the same source, was passed.

Fred Hardy, Esq., Cheshire, showed a plant of *Cypripedium Bellina*, and also one of *C. Laurocortisi*. C. L. Ingram, Esq., Godalming (gardener, Mr. Bond), sent a plant of *Cattleya Percivalliana alba*. W. Cobb, Esq., Henley-on-Thames, received an award of merit for *Cypripedium nitens superbum*, which is described below. A plant of *C. Boxalli Cobbi* was also sent by this exhibitor.

A small collection of Orchids was arranged by Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, and comprised *Dendrobium Wattianum*, *D. chrysodiscus*, *D. xanthocentrum*, *D. Hebe* (a cross between *Ainsworthi* and *D. Findleyanum*), *D. nobile*, Burford var., *Masdevallia Courtlandiana*, *Lælia autumnale alba*, *Phalænopsis Schilleriana*, *P. Aphrodite*, and numerous others.

The largest collection of Orchids was that of Messrs. F. Sander and Co., St. Albans, and contained some exceptionally good forms. *Cymbidium Winnianum*, *Lælia anceps Sanderiana*, *L. a. Hollidayana*, *Cypripedium Madame Georges Truffaut* (award of merit), *C. Mrs. Fred Hardy* (award of merit), *C. J. H. Berry* (award of merit), and many others.

S. G. Lutwyche, Esq., Beckenham, sent two *Cypripediums*, both varieties of *insigne*. H. Graves, Esq., Orange, New Jersey, secured an award of merit for *Cypripedium Henry Graves, Jun.* (see below). T. Statter, Esq., Stand Hall, Manchester, exhibited a few plants of *Cypripediums*, in which a good form or two was noticeable. Messrs. J. Veitch and Sons, Chelsea, showed three *Cypripediums*, and received two awards for *C. minosa superbum* and *C. Norma*, for descriptions of which see below. *Phalænopsis F. L. Ames* was exhibited by Mr. E. Hill, gardener to Lord Rothschild, Tring Park; and *Lælia anceps*, Rosefield variety, by De B. Crawshay, Esq., Sevenoaks. An award of merit was accorded to Mons. Jules Hye, Leysen, Ghent, for *Cypripedium Madame Jules Hye*. E. Ashworth, Esq., Harefield Hall, Wilmslow, staged spikes of *Lælias* in variety, and also one or two *Cypripedium* blooms.

A first class certificate was adjudged to *Lælia anceps Crawshayana*, staged by De B. Crawshay, Esq., and a plant of the sweetly scented *Cymbidium Traceyanum* from Mr. J. Prewett, Swiss Nursery, Hammer-smith, attracted attention. L'Horticulture Internationale, Brussels, showed a number of very faded flowers of *Cattleyas*.

CERTIFICATES AND AWARDS OF MERIT.

Lachenalia quadricolor maculata (F. W. Moore).—This is a handsome variety with fair sized flowers, the tips of which are bright maroon in colour (first-class certificate).

Lælia anceps Crawshayana (De B. Crawshay).—The colour of this variety is very rich, and the flowers are of good size and substance. The sepals and petals are deep rose, the lip being deep velvety crimson. The throat is yellow, veined with crimson (first-class certificate).

Odontoglossum nebulosum candidissimum (Fred Hardy).—The sepals and petals of this variety are almost pure white, as also is the lip, with the exception of a streak of yellow close to the throat (award of merit).

Primula Rosy Queen (Sutton & Sons).—A large flowered single variety of great substance. The colour is a very pleasing soft rose (award of merit).

Rhododendron ponticum foliis purpureis (W. Paul & Son).—This is a seedling from the type. The foliage is very rich, deep reddish brown in colour, and the habit of the plant is compact (first-class certificate).

Rose Mrs. Pierpoint Morgan (J. N. May).—This is a sport from *Madame Cusin*, with deep rose coloured flowers (award of merit).

Chrysanthemum Janette Sheaham (D. Sheaham).—This is a sport from *Princess Blanche*, and has yellow flowers of good shape. The habit of the plant is dwarf, and it is very floriferous (award of merit).

Chrysanthemum L. Canning (Owen Thomas).—This is a floriferous, late, pure white variety of much use for late flowering (award of merit).

Cyclamen Salmon Queen (Sutton & Sons).—The name of this strain admirably tells its colour. The plant is dwarf, and the foliage beautifully marbled (award of merit).

Cypripedium Henry Graves, Junr. (H. Graves).—This is the result of a cross between *Lawrenceanum* and *Marshallianum*. The prevailing colour is dull rose, the dorsal sepal showing traces of white (award of merit).

Cypripedium Mimosa superbum (J. Veitch & Sons).—This is a very handsome hybrid, obtained from *C. Arthurianum* and *C. Spicerianum*, the first-named being the pollen parent. The lip and petals are dull brown with darker markings, and the dorsal sepal is green with brown spots and a white edge (award of merit).

Cypripedium Norma (J. Veitch & Sons).—The result of a cross between *C. x Niobe* and *C. Spicerianum*. The petals are narrow and twisted, the colour being pale green with brown dots and stripes. The

dorsal sepal is white, flushed deep rose, and the lip a deep greenish brown (award of merit).

Cypripedium Madame Georges Truffaut (F. Sander & Co.).—This is a very handsome form, with a large, deep, brownish red lip. The petals are long, and of a green colour, heavily spotted brown. The dorsal sepal is dull white, flushed rose, and veined with brown (award of merit).

Cypripedium nitens superbum (W. Cobb).—This is a fine variety of the type with large beautifully coloured flowers (award of merit).

Cypripedium Madame Jules Hye (Jules Hye).—This is a form with a large lip of brownish red. The petals are green, with brown markings. The dorsal sepal is rosy red, flushed white (award of merit).

Cypripedium Mrs. Fred Hardy (F. Sander & Co.).—This is a charming cross between *superbiens* and *bellatulum*. The colour throughout is greenish-white, heavily spotted maroon. The lip is a dull white with markings of maroon (award of merit).



FRUIT FORCING.

Vines.—*Early-forced in Pots.*—As soon as the fruit is set attention should be given to thinning, commencing as soon as the berries are fairly swelling, watering copiously with liquid manure. Encourage growths above the fruit, yet only as much as can have exposure to light. Surface dress with short manure, and when roots are emitted from the collar some turves may be placed around the runs, extending a couple of inches inwards and outwards, so as to be on the fermenting material. The temperature should range from 65° to 70° at night, 70° to 75° by day, and 80° to 85° from sun heat, admitting air from 75°, and closing early so as to raise it to 85° or 90° with sun heat, damping available surfaces at closing time, or early in the afternoon. Syringing over the foliage ought not to be practised, as there is always a danger of the water leaving a deposit on the berries, which spoils the appearance of the Grapes when ripe.

Early Houses.—Great care is now required in ventilating, so as not to admit draughts of cold air, which cripple the foliage. Disbud and tie down the shoots before they touch the glass. In stopping do not confine to any orthodox number of joints beyond the bunch, but extend it so that an ample and even supply of foliage will be insured, yet do not crowd the house with more than can have full exposure to light. Remove all superfluous bunches, overcropping and overcrowding of the foliage being most adverse to satisfactory results. When the Vines come into flower maintain a night temperature of 65° to 70°, and 70° to 75° by day, and a rather drier atmosphere.

Houses Started at the New Year.—Protect the outside border from frost, an abundant supply of leaves, litter, or fern being necessary to prevent chill from snow. Sprinkle the Vines frequently; maintain a temperature of 50° to 55° at night, 60° to 65° by day, ventilating freely above 65°. The rods and canes of young Vines should be slung in a horizontal position, or lower at the extremity, to secure a regular break.

Houses of Late Grapes.—These may now be removed to a dry room, where they will keep quite as well as if left on the Vines. Cut the bunches with as much wood as can be spared, and place the stems in bottles filled with clear rain water, each containing a few bits of charcoal. Fix the bottles in an inclining position, so as to admit of the berries hanging clear of their sides, and they should be so far apart as not to allow the bunches to touch each other. Keep the temperature of the room at about 45°, examining the Grapes occasionally for decayed ones, which must be carefully removed. Prune the Vines, dressing the cuts carefully with patent knotting or best French polish. Cleanse the house thoroughly, and dress the Vines with an insecticide or combined fungicide. Admit air freely in favourable weather, seeking to give the Vines as long and complete rest as possible. When the borders are not satisfactory, lift the Vines and relay the roots in fresh compost. Where the Vines have inside and outside borders the renovation may be accomplished without loss of crop by renewing the former one year and the latter the next.

Strawberries in Pots.—Proceed steadily with plants that are not required to give fruit at a particularly early stated time, especially in severe weather; 50° to 55° is ample for those started in December, and 60° to 65° by day, erring if at all on the safe side, the low; therefore 5° less in cold weather, and in the absence of sun, is advisable. Ventilate whenever there is a chance. The trusses rise boldest and the flowers are strongest when the plants have the foliage well elaborated. Close atmosphere induces soft tissues, weakly organs of fructification, imperfect sets, and deformed ill-shapen fruit.

Introduce more plants to shelves in Peach houses and vineries started about this time. Rectify the drainage of the pots, remove moss or other matter from the surface of the soil, and wash the pots clean. Surface-dress with an improved fertiliser mixed with a little rich soil, or use fresh horse droppings rubbed through a quarter-inch mesh sieve, and give each pot about a half teaspoonful of the fertiliser, which will be

washed into the soil fast enough. Strawberries require phosphoric acid, potash or soda, and nitrogen, therefore the manure should consist of bone superphosphate five parts, sulphate of potash three parts, and nitrate of soda two parts, mixed, taking care to have the nitrate finely powdered. Noble is an excellent variety for introducing now to fruit in April, also Auguste Nicaise, the latter being the brighter fruit. Royal Sovereign is a finer Strawberry than either for quality, and Scarlet Queen is esteemed in some places for its excellent flavour. President, Sir Joseph Paxton, and Sir Charles Napier may also be introduced, and the very desirable, but seldom forced, variety Lucas. To maintain the succession of fruit unbroken plants of La Grosse Sucrée and Vicomtesse Hericart de Thury must also be introduced at the same time.

THE KITCHEN GARDEN.

Preparing for Forcing.—Forced vegetables are always appreciated, and must be forthcoming in considerable numbers in many places. Some few can be most surely and easily had with the aid of houses and fire heat; but a good stock of pits and frames, as well as an abundant supply of hotbed material, is indispensable, or at all events of the greatest service. A large heap of leaves ought, where possible, to have been collected ready for mixing with and moderating the more violently heating stable manure. If the latter alone has to be used then it must be thrown together, and remain till the heap is quite hot in the centre, when it should be turned inside out and once more allowed to become hot, this being repeated a third time with a view of dissipating all rankness. Never allow the heap to attain what may be termed a "white" heat in the centre, as this quite spoils the material for either hotbeds or manurial purposes; but turn the heaps before overheating takes place, also gently watering any dry portions of the manure that may be met with. When leaves are to be largely mixed with the manure the latter need not be so long in preparation, and if the mixture is thrown into a large heap for a few days fermentation will commence, and a gentle heat be observable directly the hotbeds are formed. Peat moss litter by itself heats somewhat violently, always supposing it is not allowed to become very wet. It can, after careful preparation, be used alone, but is more effective mixed with three times its bulk in leaves.

Soils for Hotbeds.—Those who force vegetables ought always to prepare an ample supply of soil for the purpose. A rich compost is not desirable: Sandy soil suits Carrots, Potatoes, and Radishes admirably, a little fresh loam being added for Kidney Beans, Turnips, Peas, and Cauliflowers. Sifted material from a heap of old potting soil, fine loam from the stacked heap, and ashes from burnt vegetable refuse make a mixture that is of the greatest value for seed boxes and beds.

Carrots and Radishes.—These cannot well be forthcoming too soon, and a good sized frame or two or three lights in a pit might be made ready for sowing at once. Form a hotbed 3 feet in depth in the front, and 6 inches higher at the back, and make it somewhat firm, a lasting rather than a strong heat being most desirable. Place enough short manure on this to raise the soil well up to the glass, and cover with 6 inches of the fine soil recommended. Close the lights, mat over till the heat has risen, and directly it is seen there is not much likelihood of overheating taking place sow the seeds. Form shallow drills with the edge of a short measuring rod 8 inches apart for the Carrots, and between these draw other drills for Radish seeds. Should the soil be somewhat dry, give a gentle watering after the drills are opened rather than after the seeds are sown and covered. Sow either Parisian Forcing, Early Horn, or Nantes Horn Carrot thinly, and either the Forcing Turnip-rooted, Wood's Frame and French Breakfast Radishes, or some of each may be sown very thinly, as Radishes fail to form roots quickly if at all crowded. Cover with fine soil, keep close, and protect till the Radishes appear, after which admit all the light possible, and give a little air during warm days.

Potatoes.—For these deeper frames and more head room in pits are required. Form the hotbed as advised in the case of Carrots, and cover with 9 inches of soil. The early short-topped Ashleafs, Sharpe's Victor, and such like varieties are most suitable for forcing, and medium sized tubers ought to be first started in a moist heat or forcing house, planting them with the strong primary sprout well advanced. When the soil is warmed through, open drills 15 inches apart and 6 inches deep with the hand, and dispose the sets from 6 inches to 8 inches apart. Partially mould over at first, just covering the sprout. Hard forcing should not be attempted, and dryness at the roots ought to be guarded against. Potatoes may also be gently forced in pots and boxes. Pots 8 inches in diameter or a size larger are suitable for the front stages and back shelves of newly started vineries and Peach houses, while boxes 9 inches in depth and the same in width answer well for standing on borders of the same class of houses. Place one fairly large previously sprouted tuber rather deeply in each pot, and allow room for a top-dressing to be given by the time the growth reaches the level of the rim. In the narrow boxes place a single row of tubers 6 inches apart, and treat similarly to those in pots. A sprinkling of superphosphate of lime, and either soot at the same time or nitrate of soda a month later, may well be added to the light loamy soil used for Potatoes in pots and boxes. Keep the soil uniformly moist, water being given more freely after the haulm has become strong.

Forcing Lettuces.—Some of the best Lettuces of the season may easily be had in April with the aid of a mild hotbed and frames or pits. Early Paris Market, Golden Queen, and Commodore Nutt Cabbage Lettuces all force admirably, and when cut are so crisp and as to require careful handling and packing. Sow in pans and place in brisk heat

to germinate. Before the seedlings become drawn and weakly place them on a shelf near the glass in an intermediate temperature, where they will continue to make good progress. If sown thinly there will be no necessity to prick them out temporarily, but they may be dibbled in where they are to grow when large enough to handle. Prepare a firm, mild hotbed, on this set a shallow frame, and three parts fill this with a good loamy compost. When well warmed through, prick out the Lettuce 5 inches apart, and give a gentle watering. Keep somewhat close at first, ventilating more freely when the plants are growing strongly. If the soil is rather poor sprinkle a light dressing of nitrate of soda or other quick acting nitrogenous manure among, but not over, the plants, and water in. When the plants touch each other all round, one-half should be cut out for immediate use, and the rest, if kept moist at the roots, will then attain their full size and heart beautifully. Young Lettuce leaves mixed with well blanched Chicory and Mustard and Cress form a presentable salad. Sow seed of Paris White Cos in boxes or pans somewhat thickly every week or so, and place in gentle heat or on a mild hotbed to germinate, afterwards transferring to shelves in gentle heat. The plants, when about 4 inches high, may be cut over for salad purposes, much as if they were so much Mustard and Cress.

THE BEE-KEEPER.

APIARIAN NOTES.

THE WEATHER.

SINCE the beginning of the year the weather has been of a very wintry nature. On the morning of the 10th the thermometer stood at 5°, and on that of the 11th 10° below freezing point. The barometer has been steady for some time at 29.50°, but is falling with signs of a change, which will be welcomed by most people.

FOUL BROOD.

The question of foul brood has been much discussed of late, and the Government have been urged to take steps to have an Act passed for its suppression. The object to rid the country of the disease is a laudable one, but we cannot disguise the fact that the same individuals who are so clamorous for Government interference have shared not a little in spreading the disease. They have condemned straw hives, and yet they were the only ones they publicly demonstrated and manipulated with at their exhibitions, every one of which I attended, saw foul broody combs from them cast in the fields, and the bees from neighbouring apiaries working on them.

As bad, too, was the practice of keeping bees shut in their hives during the whole time of the shows, which lasted about a week. I have several letters in my possession from influential gentlemen complaining of "the cruel practice." A great many gentlemen are encouraging their gardeners to keep bees, but they would probably resent any inspection of their grounds. I certainly should resist any interference with my hives between the months of September and May, on the assumption that robbing might be induced and bees and brood chilled to death. During the other portion of the year loss of honey would accrue in fine weather. Nor is that all: no stranger would manipulate my hives to my satisfaction. Should I have to submit to ruined hives? How are hives to be inspected? They cannot be diagnosed like diseased animals.

I can see the force of any person who may think himself aggrieved at a neighbour's supposed affected hive applying to the Court for an inspection to be made, at the same time lodging a deposit to cover all damages and expenses if no disease be present. The question is one of great importance to the country and to bee-keepers, and it is to be hoped that they, as a body, will be listened to, and that their opinions will have the consideration they deserve.—A LANARKSHIRE BEE-KEEPER.

ENEMIES OF BEES.

DURING the winter and early spring stocks of bees in whatever hives they are placed should be carefully watched to see that they are not molested in any way. The chief culprits are mice, and the blue tit (*Parus coerulesus*), and the great tit (*Parus major*), and these where numerous, if not destroyed, will do a great amount of mischief in a short time. If mice once gain an entrance to a hive and are not disturbed, they will soon destroy the combs and consume all the stores, the bees eventually dying through starvation. I have on several occasions seen strong stocks in straw skeps in cottage gardens destroyed from this cause.

The tits do not enter the hives but waylay any stray bees that may from any cause have ventured outside. If the bees do not come out of their own free will, the birds endeavour to entice them out, by going from one hive to the other, alighting on the floor

board, and giving two or three sharp taps at the entrance. If the weather is not too cold odd bees will come out, to be at once seized and carried to the nearest bush and devoured. The head, wings, and sting are discarded, the abdomen being the only part consumed. They quickly return to the hive and the operation is repeated over again, and it is surprising the number of bees a few of these birds will destroy in a short time.

When the ground is covered with snow it is easy to see the mischief that is going on. I have sometimes seen the ground literally covered with the remains of several hundreds of bees when the snow has remained on the ground for a few days. At this time of the year I always keep a number of spring mouse-traps baited with a piece of bread dotted about among my hives, and these will invariably catch both the mice and tits. Sometimes I have caught over two dozen in one week, and having a number of stocks near a plantation the tits are very numerous.

Sparrows, too, are troublesome; but they will take them when on the wing. Toads will fatten on them during the summer, when the heavy laden bees drop on the ground near the entrance to their hives, about which the toads are often found; but I do not think it advisable to destroy toads, as they do a great amount of good in the garden.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

H. Cannell & Sons, Swanley, Kent.—*Descriptive Chrysanthemum List.*

J. Cheal & Sons, Lowfield Nurseries, Crawley.—*Seed Catalogue.*

Crews, Calthorpe Street, Banbury.—*Onion Catalogue.*

Dickson & Co., Waterloo Place, Edinburgh.—*Garden Seeds.*

Fotheringham & King, Corn Exchange, Dumfries.—*Seed Catalogue.*

W. Fromow & Sons, Sutton Court Nursery, Chiswick.—*Spring Seed List.*

J. Jefferies and Sons, Cirencester.—*Centenary Catalogue of Seeds.*

Kelway & Sons, Langport.—*Seed Manual.*

Kent & Brydon, Darlington.—*Seed Manual.*

Laxton Bros., Bedford.—*Seed List.*

The Leeds Orchid Co., Roundhay, Leeds.—*Orchid Catalogue.*

Little & Ballantyne, Carlisle.—*Garden Seeds.*

McDougall Bros., 10, Mark Lane, E.C.—*Insect Destroyers.*

R. Neal, Wandsworth Common.—*Spring Catalogue of Seeds.*

W. Rumsey, Waltham Cross.—*Spring Seed List.*

The Penny Seed Packet Co., Loughborough.—*Seed Catalogue.*

J. R. Tranter, Hart Street, Henley-on-Thames.—*General Seed List.*

T. S. Ware, Hale Farm Nurseries, Tottenham.—*Lists of Begonias and other Plants, and Flower and Vegetable Seeds.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Tomato House (Cantab.).—By all means make provision for abundant side as well as top ventilation.

Seedling Potatoes (R. M.).—New varieties of Potatoes do not receive any recognition of merit from the Fruit Committee of the Royal Horticultural Society until they have been grown with others in the Society's Gardens. If you write to Mr. A. F. Barron, R.H.S. Gardens, Chiswick, London, he will supply you with all requisite information for attaining your object. We are obliged by your communication.

Second-hand Books (Distressed).—No matter how good the condition of the books may be, they can only possess second-hand value. This, however, varies with the demand for books and their condition. As a rule the best amounts are obtained by offering spare books of the kind you name locally, and letting them be examined by persons

interested in gardening. All those you mention are useful. If there is a gardeners' improvement association or horticultural society in your district, it might be worth your while writing to the secretaries on the subject. We have duplicate volumes of the whole of the books, and therefore more would be superfluous here.

Garden Charities (W. S.).—Your letter displays the kindness of your heart and your sympathy with the afflicted. Our gardening charities do indeed need all the support that can be accorded them; and you will be glad to know that the demands on them are in various ways constantly being brought before that section of the public from which help may be expected. The Secretaries are very zealous, and lose no opportunities that give promise of increasing the funds for the relief that is so urgently needed both by aged gardeners and widows in affliction. We hope you are a local helper in inducing persons in your neighbourhood to become subscribers.

Peach Buds Forward (Rosarian).—There is nothing wrong, so far as we can detect, with the buds; they have a good hold of the wood, and are somewhat forward, but not more so than many others this year, in consequence of the late mild weather. It would be very unwise to start the trees, because the buds are swelling, as they will not take the least harm, but be all the better for coming on slowly, the flowers being stronger and the set better than when they are brought forward rapidly. The house should be freely ventilated, fully at and above 50°, and fire heat need only be used to exclude frost, though a few degrees of that would not do any harm till the blossoms show colour, when, of course, it must be excluded. The crop will not be lost by the condition of the buds, but the wood is not very firm—it seldom is in young trees, and steady growth is the more to be desired.

Mushroom Beds Failing (A. J.).—There does not appear anything the matter with your preparation of the material and treatment of the beds, but it is very unwise to mix old with new material, as the old is not likely to produce and retain warmth so well as fresh and properly prepared. If all the "spawn" is like that sent it could not produce Mushrooms, as the sample is entirely devoid of mycelium; but whether it has contained any we are unable to say. You should have sent some of the "brick" as received from the vendor, and then we could have given a decisive opinion as to its containing live spawn or not. The temperature at which you spawn the bed is rather high, and the appearance of some Mushrooms in button form and non-progress afterwards indicates either that the spawn was weak, or the bed overheated, the latter being as likely to be the cause of the failure as the former.

Watering Cattleyas and Lælias (R. B.).—In watering these plants always be guided by the appearance of the roots and the state of growth. When "in sheath" is rather a vague term, as much depends on the species. Cattleya Mossiæ, for instance, is in sheath while at rest during the winter; C. labiata autumnalis and C. Gaskelliana on the other hand, flower on the current year's growth, so that while resting they bear no flower-sheath. When advancing for bloom the great majority of Cattleyas and Lælias like a rather high temperature, with adequate moisture at the roots, as indicated by the great growing points of the latter. Give all the air possible without draughts, also not letting the temperature fall much below 65° by day. This will prevent a close moist atmosphere, as these Orchids thrive best in an airy spacious house. Keep the atmosphere of the case as dry as possible at this season, and wipe the glass inside to avoid drip.

Mites on Bones (S. W. N.).—The bones swarmed with the mites, which feed for the most part on animal substances, such as bones, cheese, and similar matter, but they do not confine their attacks to these matters, for they can and do feed on vegetable substances, such as flour, with little less gusto. It is Tryoglyphus siro, which may or may not feed on living vegetable matter, the evidence being negative so far, but this mite is certainly found associated with decay in vegetable matter; yet it may not be the cause of the decay. It is difficult, however, to connect any other organism with the decayed tissues, though the subject is a strained one, and nothing for certain known of the cause of the tissues perishing. We should not use the bones until they had been exposed to heat, say on a wood fire, placing them on the hot embers and covering them with the same. The slight charring would not injure the bones in the least; indeed, they may be used along with the wood ashes with great advantage in Vine borders.

Slug-infested Ground (Dorset).—The best plan would be to procure some freshly burned lime, lay it in small heaps convenient for spreading, and cover it with a little soil. The lime will gradually absorb moisture and slake, and when that is effected—the lime being hot and floury—spread it evenly on the ground and point in with a fork as soon afterwards as practicable. In such bad cases as yours one bushel of quicklime per rod of ground should be used, selecting mild and fair weather for applying the lime. If inconvenient to use the lime you may employ nitrate of soda at the rate of 1 lb. per rod, giving the ground a dressing before sowing or planting, and again when the crops or plants are starting into growth. It may be used on all crops with benefit, and will not injure any provided it does not rest in their growing centre or on the leaves. For plants in frames you may use lime water, placing a peck of quicklime in a tub and pouring on 30 gallons of water, stirring well, and letting stand forty-eight hours or more, then sprinkle on the plants after dark with a rose watering can, employing the clear lime water only. It is equally efficacious in the open ground, and by persistent use thoroughly efficacious.

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Messrs. DOBBIE & CO., Seed Growers and Florists to the Queen, Rothesay, beg to inform the readers of "The Journal of Horticulture" that a copy of the Twenty-eighth Annual Edition of "DOBBIE'S CATALOGUE and COMPETITORS' GUIDE" will be forwarded to any address per parcel post on receipt of SIXPENCE in Stamps.

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Journal of Horticulture.

THURSDAY, JANUARY 24th, 1895.

MAKING FLORAL WREATHS.

THE pleasing custom of sending wreaths or crosses as a last tribute of regard to those who have passed away continues to be done as much if not more than ever; nor is it likely that a custom which appeals so gently to the finer feelings of human nature, and helps to lighten the burden of grief by surrounding the sufferers with sympathy, will ever fall into desuetude among civilised people, for what can better soften the sadness of these solemn times, or speak in a truer spirit of hopefulness of the great hereafter than flowers, those fragile emblems of a Creator's power?

Gardeners are frequently called on to make wreaths for such occasions, and it behoves them to carry out the work to the best of their ability, because the results of their efforts are placed side by side with floral devices of various descriptions, many of which are contributed by professional florists of repute, who invariably have abundance of the most suitable flowers for the purpose to select from. This, combined with the expertness in making up which comes from constant practice, insures the production of an artistic and well-finished device, beside which one of meagre appearance cuts but a sorry figure. "Aim high" should therefore be the gardener's motto when carrying out work of this description.

Many different methods are resorted to in wreath-making, and equally good results may be obtained in various ways. Wire frames may be purchased cheaply, and answer the purpose for which they are intended admirably; flat rings of wood of the required diameter also do very well. I prefer, however, to make my own frames. Galvanised wire about the thickness of that employed for wire fencing answers well for wreaths 18 inches or 2 feet in diameter; for smaller ones slightly thinner wire will do, and at any time when no wire sufficiently stout is at hand the difficulty is easily overcome by using it of double thickness, simply twisting it together so as to form a circular frame, and if necessary to still further strengthen it binding it together with thin wire. I seldom, however, find it necessary to do this. When this part of the work is completed a

true circular shape can readily be obtained by hammering a little here and there.

A good coating of moss should next be fastened in the frame, green carpet thread or wire answer equally well for this purpose. On one side the moss may be left with a rather flat surface, and on the other full and rounding. Should a large wreath be required, *i.e.*, one 3 feet or upwards in diameter, it is a good plan to use two rings, and place one inside the other an inch or two apart, fastening them together by means of wood bound on at intervals, and thin wire interwoven all round; a firm circular base is then obtained, which when formed into a wreath will not lose its shape when handled. Several large wreaths sent out by florists which have come under my notice were, to my mind, far too "shaky" in this respect, and the only advantage that could be claimed for them was that they were somewhat lighter in weight than others of the same size made substantial enough to retain their proper form.

The next matter requiring attention will be the wiring of the flowers, but before doing this it will be necessary to settle what method of fastening them on the foundation shall be adopted. Some wreath makers bind them on with wire, and practically finish each part as they proceed; others bind on a fringe of Fern, and fasten the flowers by thrusting the mounting wires through the moss, and then turning the ends and pushing them into the moss again. As far as appearance goes equally good results may be obtained by either method, but as the latter is the most expeditious way of doing the work I prefer it, notwithstanding the fact that some object to it on the score that the flowers sometimes fall out of position. This, however, is more imaginary than real, and only occurs when the work has been improperly done. Should it be decided to fix the flowers on the framework in the way I have just described, they must be mounted on rather stout wires of good length.

When making very large wreaths it is a good plan to wire each flower separately, then make them into little bunches before securing them to the stout wire. To make a good wreath built up well in the centre abundance of flowers are required, for although it is essential that a light surface be obtained, this should not be secured by arranging the flowers so thinly that the wires and moss are visible between them. Wreaths which sometimes look well at first sight will not bear close inspection by reason of this defect.

The lightness of surface so desirable ought to be obtained by employing comparatively heavy flowers for a groundwork, and dotting them, so as to form an upper surface, with lighter ones. Chrysanthemums, Camellias, Tulips, Eucharises, Gardenias and Callas are all excellent for groundwork, and Roman Hyacinths, Lily of the Valley, Jasmines, *Spiræa japonica*, Freesias, Marguerites, and numerous species and varieties of Orchids, as well as many other flowers when in season, are admirably adapted for giving lightness. Some flowers, by reason of the boldness of their outline, make beautiful wreaths without the admixture of other flowers. Callas and *Lilium Harrisii* rank among the best for this purpose. Violets are also in much demand, sometimes because of their delightful perfume, at others because they were the favourite flower of the departed ones; but from an artistic point of view wreaths made entirely of them do not compare favourably with others made from the various kinds of pure, rich, white flowers.

Some wreath makers, in my opinion, make the mistake of using too much greenery on the surface. A delicate green Fern frond here and there enhances the beauty of the whiteness around, but the bulk of the greenery ought to be employed as a fringe. When Fern fronds are scarce the use of some of the lightest forms of *Cupressus Lawsoniana* will help to economise without detriment to the general effect.

In packing wreaths for long journeys stout boxes ought to be used, and these large enough to admit of the wreaths being placed in the bottom without crushing the extremities of flowers or

Fern. To secure in position, two strings should be passed under the flowers, tied to the foundation, then drawn through holes bored in the bottom of the box, and tied on the outside. It is also advisable to have printed or written on the lid, "Please cut the string at the bottom of the box (on the outside) before taking out the wreath."

During frosty weather boxes containing wreaths should be lined with cotton wool and tissue paper. The lids must also be lined inside with the same materials, held in position by means of tacks, then if the paper forming the inner lining of the box is drawn slightly over the outer edges of it, when the lid is placed on and secured with string the whole of the lining will be held in position without resting on or disfiguring the enclosed flowers. —H. D.

FORWARDING THE WORK OF SPRING.

WHETHER gardens are large or small each season brings with it its own particular work. We can nevertheless by looking ahead and making the most of the time and labour at disposal forward considerably the work of spring. When the weather is showery at this season, the men waste a great amount of time in running backwards and forwards in sheltering from the rain, and to all appearances enjoy it, indeed some of them would rather get wet than be closely employed in washing and cleaning the houses and sheds. Yet this work must be done, and it should be done now. With clean houses and clean plants we look forward for a good start when the growing season arrives. The present is also a good time to repair broken trellises instead of later in the season, or to replace them with new ones if necessary. If the timber is cut to the right sizes labourers can make trellises as well as joiners, often in less time and certainly at a cheaper rate. If the trellises are to be used in warm moist houses dry material should be used, to be well painted with red lead and oil as they are put together, then coated with other colours according to fancy. For many purposes painting is unnecessary. Sheds and the men's room should be thoroughly cleaned, when they will be presentable for twelve months.

In other departments tools can be looked over, repaired, cleaned, painted, and those worn out replaced by new ones. All should be in readiness for use when needed in the spring. Watering cans and barrows also come under this head, and when repaired should be protected by a coat of paint. There is generally time and opportunity for doing work of this nature where a keen desire exists to have all things in order. Seed and cutting boxes should be ready for use to prevent delay when that is most dangerous. When all is in readiness work at the busy season proceeds quickly. Stakes are often crowded away in a confused mass, and instead of repointing, sorting, and tying them in bundles of various sizes they have to be sorted when needed: others also have too often to be sent for when urgently wanted for Carnations, Chrysanthemums, and a host of other plants. This is a mistake, and all possible provision for the season should be made now. A few might easily be pointed by each man in the morning and perhaps again at night before it is quite light enough to commence the ordinary indoor work, or after it is too dark in the afternoon. The stakes soon dry if the pointed end is inserted in a pot of sand, and should then be tied into bundles weekly. An adequate supply of labels and pegs must also be prepared.

Charcoal can be sorted in sizes ready for use, all pots washed and stored away; crocks, too, for all important work should be washed. If a little more attention was paid to this matter we should have fewer water-logged plants; use dirty crocks and the drainage soon becomes choked. The crocks can be sorted by passing them through sieves of various sizes, then, when the potting season arrives, the labour in draining the pots is reduced to a minimum. Peat can be pulled ready for use as needed for Orchids, and the small particles shaken out will come in useful for small Ferns and other plants that require a little peat. Loam may be broken up, and this with leaf mould stored ready for use.

Manures of various kinds should be under cover, and when dry enough passed through sieves as opportunity offers. The supply of chemical stimulants may be ordered for use when wanted; but it may be well to note that superphosphate of lime if kept very long after being manufactured partially goes back to the insoluble condition.

It is surprising with what facility work can be done during the busy months of the year when everything needed is ready to hand, and it is only by the exercise of foresight that the best can be made of the labour provided, which is little enough in most gardens. —WM. BARDNEY.



LÆLIA ANCEPS CRAWSHAYANA.

At the last meeting of the Orchid Committee at the Drill Hall, only one first-class certificate was awarded, and this was for the variety so well depicted in the woodcut, fig. 12. This is a magnificent form of *L. anceps*, and has unusually broad petals, the colour of which is a very rich rosy-purple. The sepals are long, and the shade is somewhat paler than the former. The lip is singularly handsome, the outer portion being of the richest velvety crimson hue, while the throat is yellow veined with beautiful crimson-brown. It is a superb variety, and thoroughly deserving of the honour conferred. It was exhibited by De Barri Crawshay, Esq., Sevenoaks.

THE LATE DUCHESS OF MONTROSE'S ORCHIDS.

As will be seen from an advertisement Messrs. John Cowan and Co., Liverpool, have purchased the Sefton Lodge, Newmarket, collection of Orchids, and that a priced catalogue of them is being prepared, of which copies will be posted to applicants on the 26th inst. It will be remembered that a particular purchase of these plants created some interest among the horticultural and legal community a few years ago.

CALANTHE VEITCHI AT ROOK'S NEST GARDENS.

WHILE on a visit to Mr. Friend, the able manager at these fine old gardens, I was struck with the grand display of *Calanthe Veitchi*. Seldom, if ever, have such magnificent specimens been seen of this beautiful winter-flowering and decorative Orchid. Mr. Friend had a group of about sixty plants, all in the best possible condition, many of the spikes measuring 5 feet 8 and 5 feet 9 inches in length, bearing between sixty and seventy flowers, which I could count at the time of my visit. The colour was excellent, and the finish beautiful. Orchids are evidently grown well in these gardens, as I saw a great many others in the best possible condition, including some grand masses of *Dendrobium nobile*. A few remarks on the management of *Calanthes* from Mr. Friend would, I feel sure, be of great interest to readers of your valuable paper.—WM. PENTON.

CYPRIPEDIUM NIVEUM.

IN the Orchid column of the *Journal of Horticulture* (page 25) there is a note on the delightful little *Cypripedium niveum*, in which it is spoken of "as difficult to manage" and "liable to the dreaded Orchid disease known as spot." Of this latter I am not so certain, as I do not think the dying off can possibly be attributed to disease, but simply dwindling away for lack of support, which it does not find in the ordinary peat and sphagnum diet.

Having been most successful in cultivating *C. niveum* and its allied species *C. bellatulum*, I am in a position to prove wherein most growers fail. About six years ago a few small pieces came under my care, these being potted in peat and sphagnum. Instead of increasing in size, they became gradually smaller, and I feared I should lose the whole of them. Eventually, and as a last resource, they were repotted. The compost consisted of limestone from the carboniferous formation, loam, and a little peat and sphagnum, working a few small pieces of limestone in the latter. I may mention that the limestone was used in place of crocks for drainage, filling the pots to within an inch of the rims.

Almost immediately the plants commenced to improve, until now they are healthy, and both grow and flower very freely. My opinion is that when the plants have failed, although limestone may have been used, it is on account of this latter not being of the proper description—i.e., from the carboniferous formation. I have

also a plant that has no compost at all, the roots being simply bedded in the limestone and surfaced with moss. If anything, this plant is thriving better than the others. The moss retains the moisture, or rather, keeps the stones from drying.

Water, on account of the material they are potted in, is poured into them daily, and during the spring and summer as well. The roots for the size of the plants are wonderfully large, and they entwine themselves amongst the limestone and cling very tenaciously, demonstrating as plainly as possible that it is the limestone alone, and not any humus-forming compost, on which they thrive.

Some years ago I remember reading of this *Cypripedium* succeeding where the grower had added a fair proportion of loam, using crocks in the ordinary way for drainage. Possibly the success was through lime in a sufficient quantity being present in the loam.—A. YOUNG.

CATTLEYA TRIANÆ.

ALTHOUGH not widely distributed geographically in comparison with some other species, this beautiful winter blooming *Cattleya*



FIG. 12.—LÆLIA ANCEPS CRAWSHAYANA.

is extremely variable, hardly two plants bearing flowers exactly alike. At least fifty varieties have been described, and many of them figured in the *Journal of Horticulture*, but as many of these are very rare and some absolutely unique, no good purpose would be served by describing them. Suffice it to say that they vary in colour from pure white, through many shades of pink, rose, and magenta to deepish purple. The largest flowers measure upwards of 8 inches across the petals, and it must be a very poor form indeed to be less than 5 inches.

C. Trianæ should be grown in a structure heated in the summer to 60° by night, and by day about 70°, rising 5° or 10° higher by sun heat. The winter night temperature must be kept as near 55° as possible, and never be allowed to go below 50°. As little shading as possible should be given, and this must be provided by moveable blinds. The larger the house and the farther in reason the plants are arranged from the glass the less shading will be required and the better the plants thrive.

The compost for *C. Trianæ* should be used in a somewhat rougher condition than most Orchids require, and must consist of the best materials only. About three parts of peat to one of sphagnum, with abundance of small crocks and charcoal, will suit

admirably. The plants should be potted soon after flowering, using thoroughly clean pots two-thirds filled with drainage. For the larger plants a small pot may be inverted over the hole of the larger one, and the space around and above it filled with crocks; this makes them lighter to handle, and insures a free passage for the water. The drainage must be covered with the rougher portions of the sphagnum to prevent the peat being washed downwards by watering.

Fix the plants in position, allowing the base of the leading pseudo-bulbs to be about an inch above the level of the pot, and proceed with the dibber to lay the compost evenly and firmly about the roots. See that the plants are so firmly fixed, by staking and tying if needful, that they cannot rock, or the young brittle roots are very liable to be snapped off in moving the plants. The ends of the moss and peat must be clipped off neatly, and the compost left a little higher in the centre than around the rims of the pots. Water very sparingly at first, giving more as the roots begin to run in the new compost, but avoid at all times wetting the pseudo-bulbs more than is absolutely necessary. When growing freely the compost should never be very dry, but if frequent syringing between the pots is practised, it will not be necessary to give water at the roots oftener than twice or thrice a week, according to the weather. A free circulation of air is of the greatest importance in growing Cattleyas, and during the summer months the lower ventilators should be partly open day and night.

C. Trianae is subject to the attacks of white scale, which must be kept in check by sponging, or the appearance and health of the plants will suffer in consequence. I have described the treatment of this Orchid somewhat in detail, as it is similar in many respects to that required for all the labiate group of Cattleyas. The chief difference is that the summer and autumn blooming species, as the true *C. labiata*, *C. Gaskelliana*, and others, require repotting in the spring instead of immediately after flowering. A few kinds, too, like rather more heat, as mentioned in these pages under the headings of the respective species. The resting and growing seasons must be decided, but the plants ought not to be over-dried or allowed to shrivel.

Imitate Nature as far as practicable by a gradual increase and fall in the temperature in the spring and autumn, and remember that although the plants in a house must, to a certain extent, be treated collectively, the individual wants of each separate plant should always be kept in mind.—H. R. R.

MUSHROOMS IN PEAT MOSS AND SAWDUST.

I HAVE not had experience with peat moss for Mushroom growing after it has been used as litter, but perhaps my practice of sawdust used in the same way, and afterwards for making Mushroom beds, may be helpful to "R. C. W." (page 518). At first I had considerable difficulty in getting the beds to bear regularly, and I thought if sawdust was used in the loose boxes I should have to give up Mushroom growing, but by working the materials about more, and having the heap turned daily for a fortnight, and adding chopped turf, also Oak or Beech leaves, well mixing all together, I have had good beds of Mushrooms, and have them at present bearing well. I called on a neighbour, Mr. Dalby, at Greenham Lodge, near Newbury, a few months since, and he had good Mushroom beds in bearing. They were covered with turf cut thin and beaten down like miniature lawns, but of course the growth was blanched. He assured me that the Mushrooms came cleaner, more free from grit, and the beds continued longer in bearing than when cased with soil in the ordinary way. I have since tried the plan, and so far it answers very well.—R. M., Newbury.

MARGARET CARNATIONS.

THE Margaret Carnations are comparatively easy to cultivate, and from one packet of seeds a great variety of colours may be obtained, many of which are almost equal in beauty to the best named varieties. Grown as a pot plant for greenhouse or drawing-room adornment it has few superiors. Graceful in habit, and throwing up a profusion of flowers, the sweet scent and bright colouring cannot fail to attract admiration.

If planted out during the summer, taken up before the severe frosts set in, and placed in a light airy house, an abundance of bloom may be obtained during the greater part of the winter, the usefulness of which, those who are in the habit of treating it thus can amply testify. The best mode of cultivation I find is to sow the seeds during February and March in shallow pans, a light compost being used, and the seeds thinly covered with fine soil. Place in a moderate heat until the plants are large enough to be handled, then put singly in small pots, and place in a cool house close to the glass. When they again want potting the number required for pot plants should be placed in well-drained 6-inch pots in a compost consisting of stiff loam, leaf mould, and sand, with a little decayed manure added. A cool-house shelf or frame will then suit them admirably, and as they grow attention should be given to staking and tying. If green fly asserts itself a light fumigation will be found necessary.

The remainder of the plants not required for pot culture may be

planted out on any light sunny border, to be taken up and potted in the autumn for winter flowering, and by this means a continuation of bloom may be kept up far into the winter months. Care should be taken when lifting the plants to insure their having good balls of earth attached, for if the roots are broken they will turn sickly and die. A comparatively dry atmosphere will be found most suitable for wintering the plants, from which, under favourable circumstances, an abundance of bloom may be obtained.—G. HOLLINGWORTH, *Alton Towers*.

HARDY FLOWERING TREES AND SHRUBS.

ALMOST every garden, no matter what its pretensions, has a shrubbery, and frequently this is the most interesting feature of the place. In a well-managed shrubbery there always appears to be something fresh, some object of interest that one has not noticed before. By judicious planting a good supply of flowers may be had during the whole of the year. I am sorry to say, however, many of our shrubberies are more of the character of wildernesses during the winter, when, by reason of the dullness every effort should be made to make the garden as bright and cheerful as possible.

As year succeeds year an enormous number of new flowering trees and shrubs are introduced to notice, and a good many old and almost forgotten kinds are rescued from an undeserved oblivion. These, of course, tend to swell the list to such a formidable extent that one scarcely knows where to begin. I have decided, however, to make no mention of trailing shrubs and those which must be grown as wall plants, neither, despite their undoubted utility, shall I refer to Conifers.

WINTER FLOWERING KINDS.

For convenience, I shall divide my subject under four headings—Spring, Summer, Autumn, and Winter—and as winter is with us I will begin with that season. As one would naturally expect, the list of winter flowering trees and shrubs is short, but nevertheless there are sufficient to make a grand show. The best known, and I think I may say the most useful, is the *Laurustinus*, and it is so well known as to need no description. Another shrub equally well known and beautiful is our native *Furze*, *Ulex europæus*. *Ulex europæus flore-pleno*, the Double-flowered Gorse, is still more beautiful, and when it does well its masses of golden flowers completely cover the plant.

The Cornelian Cherry, *Cornus mas*, is quite a picture in February. This is a small-growing tree, about 15 feet in height, and bears a profusion of bright yellow flowers, which appear a short time before the leaves. *Erica carnea* is not nearly so well known as it deserves to be. This dwarf hardy Heath produces its whorls of pale red flowers in great profusion early in January, and frequently in December. The *Daphne* is a very useful shrub, and a good supply of sweetly scented flowers may be obtained from January to July. *D. mezereum* is probably the best known, and is deservedly popular. The flowers are produced early in February, and vary in colour from pinky white to red. *D. laureola*, the Spurge Laurel, bears its greenish yellow flowers in January. Its chief recommendation is the early date of flowering.

SPRING FLOWERING KINDS.

Magnolia conspicua is the most beautiful of all the early flowering trees. Its height will range from 20 to 50 feet. The flowers are of good size and shape, white, often tinted with purple, and very fragrant. The leaves appear somewhat later than the flowers, and are of a beautiful pea-green colour.

Of spring flowering shrubs the foremost position must be given to the Ghent Azalea. The variety of colour is very wide. There are pure white, bright red, pinks, and yellows represented. To be really effective Azaleas should be planted in masses, and are very beautiful in the flowering season. In the morning, and again in the evening, the perfume is delicious. Then there are the Rhododendrons. We have *R. arboreum* with its white and rose flowers, and the rose-coloured *R. dahuricum* open in March, followed by a succession of most beautiful and useful flowers of almost all colours, finishing with *R. caucasicum*, rose-coloured outside and white within, in August; and *R. album* with its rather small white or cream-coloured flowers as late as November. At this period (spring), we have the Horse Chestnut with its abundant spikes of pinky-white flowers, which contrast finely with the rich green of its ample foliage. The Judas Tree, *Cercis siliquastrum*, is well worthy of a place. Its rosy-purple flowers clothe the branches in May, and are followed a little later by the peculiarly shaped leaves. The Flowering Dogwood, *Cornus florida*, bears flowers of a greenish yellow, which are surrounded by an involucre of large white bracts.

The Thorns are sufficiently numerous to require a long chapter to themselves, but as they are so well known I will content myself with giving the names of a few varieties most worthy of cultivation:—*Crataegus Azarolus*, *C. coccinea*, *C. crus-Galli*, *C. Douglasi*, *C. flava*, *C. oxyacantha punicea* and the double form, *C. pyracantha* and *C. tanacetifolia*. *Halesia tetraptera*, the Snowdrop Tree, is very welcome, as also is *Laburnum vulgare*. *Magnolia acuminata* is not met with nearly so often as it should be, for apart from its flowers, which are rather insignificant, it is a fine handsome tree, 45 or 50 feet high, bearing oblong leaves quite 8 or 9 inches long. *M. glauca* does not attain the noble height of the former, but its fragrant white flowers make it very desirable, while *M. grandiflora* is more usually seen as a wall plant. There are also such well-known trees as the wild Cherry, Bird Cherry, the Common and Portugal Laurels, and numerous others, all very beautiful in their places.

Amongst spring-flowering shrubs we have *Andromedas* and *Berberises*. The Allspice (*Calycanthus*) is not nearly so well known as it deserves to be. It has a very graceful habit, and the flowers, which vary in colour from the dark crimson of *C. occidentalis* to the lurid purple of *C. floridus*, are deliciously scented. The genus *Cornus* has a considerable number of worthy varieties. *C. alba* bears white flowers in May; the tips of its branches have a bright red tint, and it has white fruit in the autumn. *C. sanguinea* owes its name to the colour of its branches. The *Cotoneasters* are so well known as to need scarcely any description, their bright berries being very attractive during the winter. *C. microphylla* is the best known, and of it Loudon says that "grafted standard high on the Thorn this shrub forms a singular and beautiful evergreen tree." *C. bacillaris* is of different habit to the former. Its clusters of beautiful white flowers on upright branches render this shrub even more attractive in the spring than in the winter. *Cytisus albus* (the white Spanish Broom) is of easy culture, and in May is one mass of pure white flowers. *C. Adroini*, *C. nigricans*, and *C. scoparius* are good examples of the yellow Brooms, and the colour may be varied with *C. albus incarnatus*, which is of stronger growth than the white variety, and bears very pretty rose-coloured flowers. *C. purpureus* is a dwarf shrub, and, as its name implies, has purple flowers; and *C. scoparius Andreanus* is very showy.

The majority of the *Deutzias* are among the most hardy of our dwarf flowering shrubs. *D. crenata* will attain a height of 6 or 8 feet, and in the spring is covered with white flowers; the double form of this is very handsome. *D. gracilis* is well known, and is more usually grown as a pot plant, but, if planted in a moderately warm corner, flowers very freely. *Weigela rosea* is well worthy a place in every shrubbery. It flowers about the middle of April, and the colour varies from a pure white to a deep pink. There are several forms, notably *D. rosea Lava'lli*, with bright crimson flowers; *D. rosea candida* is pure white; and *D. grandiflora*, which is of stronger growth than *D. rosea*, and bears larger flowers somewhat later in the season. The *Ericas* are very useful, their dwarf habit making them particularly valuable for the edge of the shrubbery. *Pæonia Moutan*, the Tree Pæony, was introduced from China and Japan in 1789. The first introduced had single flowers, but now there are many beautiful varieties, both single and double, in cultivation. The best known and most useful of the *Philadelphus* is *P. coronarius*, the Mock Orange or Syringa. *P. grandiflorus* flowers about the end of June, and the first-named a month earlier.

The Flowering Currant, *Ribes sanguineum*, is an old favourite. *R. cereum* is not so well known. This is a dwarf variety, which from a little distance has the appearance of a Gooseberry bush. It is of very neat growth and has no spines. *Robinia hispida*, the Rose Acacia, bears its large rose-coloured flowers in May. *Syringa vulgaris*, the common Lilac, is a common shrub, and an old favourite that was introduced from Persia and Hungary in 1597. Amongst the best varieties of Lilac are *S. persica*, *S. japonica*, and *S. vulgaris alba*.

SUMMER FLOWERING KINDS.

The varieties of summer flowering trees and shrubs are not nearly so numerous as those which flower in the spring. There are, however, a good many that commence flowering at spring time and continue throughout the summer, and in some instances into the autumn. *Ailantus glandulosa*, the Tree of Heaven, was introduced from China in 1751. It is a tall tree, frequently reaching 60 feet in height, bearing greenish-yellow flowers of rather an unpleasant odour. The bronze foliage of *Catalpa bignonioides* renders it very conspicuous, and in July when in flower it is one of the most ornamental trees that we have. The flowers are borne in spikes at the tips of the branches, and are large and numerous. *C. speciosa* is taller, more erect, flowers earlier, and is more hardy than the former. Few dwarf shrubs are more beautiful than *Choisya ternata*, and it is usually quite hardy in the south and south-west. The Gum Cistus when planted in a slightly sheltered position thrives well, especially if by the side of a pond, when it will easily reach a height of 5 or 6 feet. Its white flowers resemble a single Rose, but do not last long. The *Kalmias* usually thrive well in Devonshire. *K. latifolia* especially is extremely useful for cutting from, as also are *K. angustifolia* and *K. hirsuta*, both of which are dwarf, neat growers. There are a good many varieties of Privet worth cultivating. The flowers are usually white, and the purple berries in autumn are very conspicuous. *Ligustrum ovalifolium* is largely grown as a hedge. *S. vulgare* is very fragrant, and has several good varieties, such as *L. v. buxifolium*, *L. v. fructu-luteum*, *L. v. sempervirens*, and *L. v. variegatum*.

Pernettya mucronata bears its white bell-shaped flowers in July, and they are succeeded by attractive purple berries. The leaves are small and prickly, and the young branches have a pinky tint, which in winter enhances its value. *Rhus typhina*, the Stag's Horn Sumach, or Vinegar Tree, has large hairy leaves, and masses of peculiarly formed greenish-yellow flowers. The Common Elder (*Sambucus nigra*) is highly ornamental, its masses of flowers and shining black berries being very effective. The Golden Elder, *S. aurea*, is not so extensively planted as it should be. By pinching the young growth it may be kept dwarf, and the foliage a golden colour through the summer. *S. n. laciniata* and *racemosa* are both worth growing. *Spiræa ariæfolia* is a very graceful shrub, its nodding panicles of yellowish-white flowers being very elegant. *S. Douglasi* and *S. gracilis* are also excellent. The Guelder Rose (*Viburnum Opulus*) is well known, and justly popular. It is a native shrub, and produces great numbers of white flowers, that are succeeded in the autumn by clear scarlet berries, and these, together with the bright colour of the autumn foliage, make it an object of great beauty.

AUTUMN FLOWERING KINDS.

None of the autumn-flowering trees and shrubs is better known than *Arbutus unedo*, the "Strawberry Tree," not so much on account of its flowers as of its fruit, from which it receives its name. *A. Menziesii* is worth a place if only on account of the sweet scent of its flowers. *Andromeda dealbata* only requires to be better known to be appreciated. This shrub grows about 4 feet in height, and the whole of its stems and leaves, are of a pleasing grey colour. *Aralia manshurica* was introduced from China in 1866, and, like many plants from the Celestial Empire, has a curious appearance. The flowers are white, and borne in long racemes. The flowers of *A. spinosa* are produced in October in large panicles. *A. Sieboldi* needs no description. *Clerodendron trichotomum* bears very fragrant white flowers in September. This is a strong growing shrub about 8 feet in height, and is very distinct in appearance. The flowers of *Daphne cneorum* are of a very bright pink and deliciously scented, and it has the rather unusual, but very acceptable, habit of flowering twice, first in April and again in September, which is a great point in its favour. *Hamamelis virginica* commences flowering in October and continues until February.

Olearia Haasti is a very pretty dwarf shrub. The flowers are white and produced in flat clusters. *Lespedeza bicolor* should be more often met with. Its flowers are borne in racemes, and are of a bright red purple in colour.

Numbers of other flowering trees and shrubs have doubtless been omitted, but those mentioned may be taken as amongst the very best, and are such as will, I am confident, find favour with everyone.—(Read by Mr. A. C. Bartlett, Dropmore, before the Maidenhead Gardeners' Association.)



THE CHRYSANTHEMUM YEAR BOOK.

WE have received a copy of this well-printed, attractively illustrated Year Book, edited by Mr. C. Harman Payne, F.R.H.S. It consists of eighty-eight pages of letterpress. The frontispiece contains an admirable portrait of Sir Edwin Saunders, F.R.C.S., F.G.S. The Holmes Memorial cup and Kingston vase, as well as the N.C.S. challenge shield, are represented. A few new Chrysanthemums are depicted, also a stand of blooms as exhibited in 1854, and which would not win high honours now. There is a varied assortment of matter by able writers, and the new annual is worth its price—a shilling. It is published by Mr. E. W. Allen, 4, Ave Maria Lane, E.C., and can be had from the Secretary of the National Chrysanthemum Society.

PRINCESS VICTORIA.

I AM sending you a few flowers of Princess Victoria Chrysanthemum which I think are the best I have seen at this season of the year. No special cultivation has been afforded, nor have the plants been (as you will see) disbudded. This variety ought to be a great acquisition for market growers and general decorative purposes—they are flowers of good substance, and white.—G. INGLEFIELD, Tedworth.

[The clusters are very beautiful, the central flowers 4 inches, the surrounding flowers 3 inches in diameter; florets smooth, gracefully drooping, creamy white, with the faintest suspicion of a rose tint. We have seen no better examples for wreaths, vases, or general decorative purposes at this season of the year.]

NATIONAL CHRYSANTHEMUM SOCIETY.

THE General Committee of this Society held a meeting at Anderton's Hotel on Monday last, when Mr. R. Ballantine presided. After the minutes of the previous meeting had been confirmed a large amount of attention was devoted to business of a formal nature, concerning alteration of rules and other matters requiring to be dealt with by the annual meeting. The schedule sub-Committee recommended the appointment of the following Judges at the Society's shows in 1895. For the October show.—Mr. E. Beckett and Mr. G. Langdon. For the November show.—Plants, Mr. Lync and Mr. Prickett; incurved blooms, Mr. G. Gordon and Mr. J. W. Moorman; Japanese, Mr. Edwin Molyneux and Mr. J. Parker; table decorations, Mr. J. Bevan and Mr. J. Hudson; fruit and vegetables, Mr. A. F. Barron and Mr. J. Tegg. For the December show.—Mr. W. H. Lees and Mr. H. Briscoe-Ironside. Several new members were elected, the Secretary announcing that during the year 1894 fifteen societies were affiliated, and a total of 141 Fellows and ordinary members elected up to the 31st December.

The Society's new work, entitled the "Chrysanthemum Year Book," was announced as having been published since the last meeting, and can be obtained of the Secretary. A vote of thanks to the Chairman brought the meeting to a close.

HIGHGATE AND DISTRICT CHRYSANTHEMUM SOCIETY.

THE annual general meeting of the above Society took place on the 15th inst., the President, Percival Hart, Esq., presiding. The Treasurer submitted the balance-sheet, which showed an income of £124 11s., and a balance in hand of 6s. 5d. The President, in moving that the balance-

sheet be passed, congratulated the Society on being able to commence the year with a balance in hand, and also on having Lady O'Hagan as an additional Lady Patron. The Secretary presented the report for the year, which stated that, notwithstanding the wet and unfavourable summer, the exhibition was pronounced by visitors, subscribers, and the Press to be one of the best exhibitions that the Society has held. Votes of thanks having been passed to the President, Vice-Presidents, and donors of special prizes, and officers, the election of officers for the present year took place, and resulted as follows:—President, Charles Catling, Esq.; Treasurer, Mr. J. M'Kerchar; Secretary, Mr. W. E. Boyce; Auditors, Messrs. G. Atkins and G. W. Smyth. The eleventh annual exhibition will take place on October 31st and November 1st next.

JAPANESE UP TO DATE.

THE selections of varieties for the twelve new varieties and twelve decorative are appended hereto. It will be seen that even greater diversity of opinion is expressed than has been the case with the selections previously given.

VOTES FOR TWELVE NEW VARIETIES.

30 Duchess of York	2 Primrose League
23 Mrs. W. H. Lees	2 Reine d'Angleterre
23 Miss Maggie Blenkiron	2 Good Gracious
21 Madame Carnot	2 Eda Prass
20 Niveus	2 Autumn Tints
14 H. L. Sunderbruch	2 Mrs. H. J. Jones
14 Duchess of Wellington	2 Charles Cox
14 Mrs. E. S. Trafford	2 Alice Seward
14 Louise	2 W. G. Newitt
13 Mons. Panckoucke	2 Henri Jacotot Fils
13 Rose Wynne	2 C. Lawton
13 Hairy Wonder	2 Black Prince
	2 Col. Bourne
11 Mrs. W. J. Godfrey	2 Mrs. Airdrie
10 Commandant Blusset	2 Mons. Georges Biron
8 Wilfred Marshall	1 Yellow Primrose League
8 Souvenir de Petite Amie	1 Mrs. H. T. Drewett
7 Mrs. C. E. Shea	1 Lady E. Sannders
7 Madame C. Molin	1 R. Ballantine
7 L'Isère	1 J. P. Kendall
7 Mdme. Ad. Chatin	1 Silver King
7 Inter Ocean	1 Princess May
6 Golden Gate	1 Duchess of Devonshire
6 Col. Chase	1 Viscountess Hambledon
6 Richard Dean	1 Wyndmoor
6 Pallanza	1 Madame Ad. Moulin
6 Philadelphia	1 Madame Calvat
6 T. Wilkins	1 C. H. Curtis
6 Mrs. Dr. Ward	1 Dr. Hull
6 Directeur Tisserand	1 Mdle. Thérèse Rey
6 Sir Edwin T. Smith	1 Secretary Farson
6 Madame Rozain	1 E. L. Jamieson
5 The Queen	1 Le Rhône
5 Miss Rita Schroeter	1 Tribune
5 Mrs. E. G. Hill	1 A. T. Ewing
5 President Borel	1 W. H. Atkinson
5 Lilly Love	1 Le Grandson
4 Challenge	1 Edith Rowbottom
4 Pride of Swanley	1 No'cutt's Seedling Yellow
4 Mrs. E. G. Whitte	1 Le Verseau
4 Dulcie Schroeter	1 Baronne de Buffières
4 Mons. Ad. Giroud	1 International
4 Violetta	1 Exmouth White
4 La Meije	1 Mons. P. Dewolfs
4 Mons. Charles Molin	1 Thomas Davidson
3 Frank Wells	1 Madame Octavie Mirbeau
3 Prefet Robert	1 Guirlande
3 Duke of York	1 Madame Isaac
3 Mrs. C. Cox	1 Desdemona
3 Welton Beauty	1 Th. Denis
3 Mrs. G. J. Beer	1 Mr. D. Airdrie
3 Mdme. Cambon	1 F. Waterton
3 C. Harman Payne	1 Mdme. Auguste de Lacvivier
3 Eugène Dailledouze	1 Mrs. Walter Cutting
3 Lady Ridgeway	1 Pearl Beauty
3 President Armand	1 Undine
3 W. H. Fowler	1 Excelsior
2 Sarah Hill	1 Maud Dean
2 Captain Torrens	1 Deuil de Jules Ferry
2 Mrs. R. J. Hamill	1 Chenon de Leché
2 Mrs. George Gordon	1 Mons. Hoste
2 Robert Owen	1 James Lynch
2 Charles Blick	1 Dorothy Frankland
2 Mdme. Charles Capi'ant	1 Madame Ricoud
2 John Machar	1 Anna Broom
2 Miss Goschen	1 Vice-President Calvat
2 Mdle. Thérèse Panckoucke	1 Madame Edouard Rey
2 Miss Ethel Addison	1 Madame Apprin
2 Waban	1 Mrs. R. C. Kingston
2 Lady Northcote	1 Abbie Mendenhall
2 Mrs. P. Blair	1 Mrs. J. G. Iis
2 William Fife	1 J. Lightfoot
2 Mons. Gruyer	1 Le Prince du Bois
2 Bride of Maidenhead	1 Jules Chrétien
2 Cecil Wray	1 Mrs. G. Dittrich
2 Mdle. M. A. de Galbert	1 Souvenir de Mad. C. Bullier
2 Mdme. J. de Beylié	1 Lizzie Seward
2 Garnet	

VOTES FOR TWELVE DECORATIVE VARIETIES.

38 Source d'Or	1 J. Jones
35 Lady Selborne	1 C. Shrimpton
33 M. William Holmes	1 Niveus
30 W. H. Lincoln	1 M. M. Hoste
23 Mdle. Lacroix	1 Mrs. J. S. Fogg
21 Vivian Morel	1 The Virgin
19 Elaine	1 Souvenir de Londres
16 Mrs. G. Rundle	1 Rubra Perfecta
15 Cullingfordi	1 Mrs. W. S. Stevens
14 Ryecroft Glory	1 M. W. Brunner
14 Madame Desgranges	1 Tokio
13 John Shrimpton	1 Princess of Teck
13 Charles Davis	1 J. Westlake
	1 Bohemia
11 Sœur Melanie	1 St. Michael
11 Avalanche	1 Nelson
11 James Salter	1 Astrea
10 Mdle. L. Leroy	1 President Hyde
10 Mary Anderson	1 W. Stevens
9 E. Beckett	1 Waban
9 Golden Gem	1 Mdle. Melaine Fabre
9 Bouquet des Dames	1 Rose Owen
9 Margot	1 Gluck
9 Mrs. Dixon	1 Alice Castle
8 Boule de Neige	1 America
8 Florence Davis	1 Lord Brooke
8 Lady Fitzwygram	1 Lady Brooke
7 Elsie	1 J. Quinton
7 William Robinson	1 Mrs. C. Harman Payne
7 William Tricker	1 Mrs. E. Beckett
6 Val d'Andorre	1 Leon Frache
6 G. Wermig	1 Terra Cotta
6 G. Glenny	1 William Firkins
6 A. Clibran	1 Mrs. Langtry
6 Etoile de Lyon	1 Effie
5 Admiral Sir T. Symonds	1 Snowdrop
5 Mrs. C. E. Shea	1 Felix Cassagneau
5 L. Canning	1 Thorpe, jun.
5 Roi des Précoces	1 Dr. Sharpe
5 Yellow Selborne	1 Curiosity
5 Col. W. B. Smith	1 Fleur d'Été
5 Mrs. Hawkins	1 Sir Joseph
5 Peter the Great	1 La Vierge
5 William Seward	1 Joseph Mahood
4 Comte F. Lurani	1 Alaska
4 Beauty of Exmouth	1 Princess Victoria
4 G. W. Childs	1 Kentish Yellow
4 Chevalier Domage	1 G. C. Schwabe
4 Jane	1 Buttercup
4 Rosinante	1 Stanstead Surprise
4 Florence Percy	1 Soleil Levant
3 J. S. Dibbens	1 Mrs. E. G. Hill
3 Purity	1 Harvest Home
3 L'Île des Plaisirs	1 Blanche
3 James Carter	1 Mons. Astorg
3 Royal Windsor	1 King of Plumes
3 Mons. Garnar	1 James Lynch
3 Nellie Rainford	1 A. G. Banks
3 Mons. Bernard	1 White Christine
3 Mdme. la Comtesse Foucher	1 Pink Christine
3 de Careil	1 Princess May
3 Princesse Blanche	1 Yellow Mdle. Lacroix
3 Mons. Freeman	1 W. H. Lincoln Improved
3 M. Gustave Grunerwald	1 Kate Wells
3 Gloire du Rocher	1 Bijou de l'Horticulture
3 Bouquet Fait	1 Mrs. Wills
3 Edwin Rowbottom	1 Nonpareil
2 Jardin des Plantes	1 Madame C. Audiguier
2 Edwin Molyneux	1 Fleur de Marie
2 Stanstead White	1 Blanche Neige
2 Mdle. Thérèse Rey	1 Mrs. W. E. Clark
2 Julie Lagravère	1 Amy Furze
2 Mrs. Horril	1 A. H. Neve
2 Mrs. Nesbit	1 R. C. Kingston
2 R. Brocklebank	1 Madame R. Owen
2 Meg Merrilies	1 Barbara
2 Emily Rowbottom	1 Condor
2 Charles Blick	1 Mrs. C. Orchard
2 La Nympe	1 Miss Weston
2 Gold Mine	1 Moonlight
2 Fair Maid of Guernsey	1 M. G. de Dubor
2 Sunflower	1 General Hawkes
2 Mons. H. Jacotot	1 Mr. J. Brown
2 La Triomphante	1 Madame Raoul Chandon de
2 Mars	1 Briailles
2 L'Or du Rhin	1 Mons. Tarin
2 Phœbus	1 La Charmeuse
2 Ethel	1 Andre Faillières
2 Roseum Superbum	1 Mrs. R. Filkins
1 Eynsford White	

GRAPE GROWING IN KENT.

I HAVE been much pleased by reading very temperate letters on the above subject. During a twelve years' residence in Kent I saw many good examples of Grape culture, and in my opinion neither north nor south can claim a monopoly of good growers of horticultural produce. Those who saw Mr. Kirk's Grapes at the Crystal Palace last

year would not wish to begrudge the praise he received for such a fine exhibit, particularly the bunches of Madresfield Court and Mrs. Pearson; and further, the fine condition in which they arrived after such a long journey was very notable; but, given the convenience, there is no reason why equally good Grapes should not be grown in Kent. I think the finest young Vines in fruiting condition I ever saw were at Lambton Castle, about the year 1872, under the care of Mr. Hunter—the same Vines which a few years after produced the record bunch of Black Hamburgh Grapes. A year or two later I paid a visit to Mr. Johnson of Bayham Abbey, where Kent and Sussex join, and his Vines were equally good as at Lambton. I am pleased to record that both those gardeners are still in the same charge. They are both kind and genial men, given to hospitality. I did not ask them from which side of the Tweed they came from, but both are alike good representatives of British gardeners.—R. M., *Newbury*.

ZONAL PELARGONIUMS IN THE WINTER.

MOST growers experience some difficulty with Zonal Pelargoniums in the depth of the winter, for there are obstacles in the way neither few nor insignificant; the want of a suitable house, for instance, is often a great source of trouble and anxiety, and even when that is at command it is in request for so many other purposes that the Zonals fail to secure the necessary attention and special treatment they require.

Provided there is a house where the plants can be kept near the glass, and where the other occupants do not require a moist atmosphere, for that the Zonal Pelargonium dislikes extremely, where the night temperature ranges from 60° to 65°, and air can be freely admitted on bright days, these will flourish and nothing will surpass them for brightness and beauty during the dull time through which we are now passing.

There are many excellent single varieties, but they are not so useful for cutting, nor do they last so long as the double and semi-double forms. Perhaps they are more floriferous, but of that I will say a few words later. I prefer to grow both, but the semi-doubles in the greater proportion.

For a really first-class variety, that is to say the one that combines utility with beauty, and a vigorous habit with floriferousness and dazzling colour, there are not many to choose from. I can well remember when Wonderful held the place of honour, but it was ousted by a rival with which it could not compete, and gave place to E. V. Raspail. For winter-flowering this Pelargonium is specially adapted, as also is it for bouquet making. The colour is a vivid crimson-scarlet, and when bunching for market the dazzling effect on the eyes of the operator is very marked. The trusses of bloom are borne on strong stalks, and the pips are a fair size, and in a suitable temperature it is perpetually in flower. The market growers have selected it as their principal, and in a majority of cases their only variety for winter flowering. Since they find it profitable there is little need for apology in calling attention to its merits and pushing its claims on the private grower.

To keep Zonal Pelargoniums at their best in severe weather is a formidable task. Fog, I find, is their worst enemy, as it covers the glass with a dirty film which must be washed off continually, or the effect is quickly seen on the blooms. I water the plants about three times a week, once with liquid manure, and ventilate whenever I have a chance, if only for half an hour, to dispel the dampness in the house. But the superb display of E. V. Raspail in 10-inch pots a mass of bloom is worth an even greater amount of trouble, for it is the brightest gem we possess to illumine the dark days after Christmas.—*ENFIELDIAN*.

LIME.

I AM most grateful to "W. D." for his information, and am also looking eagerly forward for the promised article on this subject. But though your correspondent is so ready to correct my suggestion that slaked lime and chalk are, to all intents and purposes, one and the same thing, he virtually admits this fact later on his letter. Indeed, it is well known to be so, and in confirmation I may just quote "Miller's Elements of Chemistry," part II., p. 507, where is the following:—"Lime when exposed to air slowly attracts both water and carbonic anhydride, and as the result of this action it falls to powder and becomes what is termed air-slaked; in this case a compound is gradually formed, which is by some chemists regarded as a combination of a molecule of calcic carbonate with one of hydrate (CaCO_3 , CaH_2O_2)."

"Watts' Dictionary of Chemistry," 1892 edition, also says of calcium carbonate (chalk):—"Formed when hydrated or anhydrous CaO (lime) is exposed to moist air, but not by the action of CO_2 " (carbonic dioxide) on dry CaO . Thus we see the difference between atmospherically slaked lime and chalk is so slight as to be observable only in the laboratory, if even there.

I must, however, plead guilty to loose writing when I called the nitrifying bacteria "insects," though my argument is not affected thereby, as the former must be quite as delicate as the latter, and therefore likely to be exterminated by the use of lime, my view being that what is commonly spoken of as the "burning of the soil," is really sterilisation.

If calcium monoxide "decomposes the organic matter" in the soil as "W. D." assumes, is that a desirable result? I doubt it. Let us take for example a Strawberry bed at the present time. Would a dressing of lime between the rows be beneficial? because according to

"W. D." that application could not effect the destruction of the slugs and other vermin which will undoubtedly infest the buds later on.

I may here just remark on the silence of many writers who have constantly urged in the gardening Press the use of lime as an insecticide. Even "W. I.," whose note on "Garden Refuse" called forth my original inquiry, is dumb! This rather tends to confirm my suspicions that advocates of lime are not practical men, for I have never yet succeeded in discovering one garden or farm where lime is regularly or even casually applied to the soil.

"W. D." thinks my reading "has not been of a very scientific nature," as I do not seem well versed in the dictums of most writers and teachers of agriculture. I must admit the soft impeachment. I have something else to do—the *ex cathedra* utterances of these aforesaid teachers and writers having hitherto failed to command the respect and confidence of agriculturists and horticulturists, because their dogmas and theories are usually too academic to stand the test of trial by practical men.—*INQUIRER*.

[Most of the best practical gardeners and successful cultivators in the kingdom use lime. We hope to publish a communication from "W. D." next week.]



THE WEATHER IN LONDON.—After a week or more of mild dry, spring-like weather, a sudden change occurred, and nearly 3 inches of snow fell on Tuesday morning—the heaviest fall of the winter—but it soon commenced disappearing. On Wednesday morning there was for a short time a combination of lightning, thunder, hail, rain, snow, and fog, making everybody miserable for the time, but the weather improved as the day advanced.

— WEATHER IN THE NORTH.—An imperfect thaw has prevailed during great part of the week ending the 22nd inst. The snow disappeared from the low grounds; occasional showers, fog, and cold easterly winds made an unwelcome change, even from the severe weather that preceded. On the morning of the 19th 5° of frost, which gave way early, were registered; on those of the 21st and 22nd, 8° and 5° respectively; but Tuesday morning looked as if thaw were again impending.—*B. D., S. Perthshire*.

— HORTICULTURAL CLUB.—At the last monthly dinner and conversazione there was a good attendance of members. The chair was occupied by Mr. Harry J. Veitch, and there were present the Rev. W. Wilks, Rev. J. H. Pemberton, Messrs. H. J. Pearson, C. E. Shea, Selfe-Leonard, Cockett, Mawley, C. E. Pearson, Monro, Webber, and others. The subject for discussion was rules for judging, which was opened by the Secretary, and a long and very interesting discussion followed, in which nearly all those present took part.

— THE Earl of Annesley, Hon. Walter Rothschild, and Mr. C. J. Lucas retire from the Council of the Royal Horticultural Society. The Fellows recommended by the Council to fill the vacancies caused by their retirement are Mr. Sydney Courtauld, Mr. Henry Williams, and Mr. Thomas Statter.

— THE HOLLYHOCK'S DISEASE.—I should like to try and dispel an erroneous idea in relation to seedling Hollyhocks withstanding attacks of the disease better than named sorts. As a successful grower of named Hollyhocks for the last fifteen years I say emphatically that in my experience the named sorts withstand the attacks of disease in exactly the same degree that seedlings do; if the fungus comes in contact with either they will take the contagion, if not they will keep clean.—*GEO. FINLAY, East Layton Hall, Darlington*.

— AMERICAN APPLES.—The Baldwin is the great commercial Apple grown in southern New England, with the Rhode Island Greening and Northern Spy following at a considerable distance. In some parts of Maine, however, especially near the banks of the rivers, the Yellow Bellflower, according to the "Vermont Farmers' Advocate," is a great success. The fruit from a Bellflower orchard at South Gardiner, Maine, rarely brings less than 5 dollars a barrel for the first quality, which is scarcely less than prices for extra Newtown Pippins. Large, highly coloured Baldwins from the same region bring much smaller prices.

— **LAST YEAR'S RAINFALL IN KILDARE.**—Mr. Bedford writes from Straffan Gardens that December gave 2.09 inches of rain, bringing up the total for the year of 33.56 inches, as against 23.10 for 1893.—E. K.

— **VEGETABLES AND FRUIT IN COVENT GARDEN.**—New Potatoes have been selling during the past few days at 1s. per lb. Home-grown Asparagus realised 1s. 3d. per small bundle, and foreign supplies fetched 9d. per bundle. Cape Apricots, Canadian Apples and Pears, and Florida Oranges have been abundant and found a ready sale.

— **LEE, BLACKHEATH, AND LEWISHAM HORTICULTURAL SOCIETY.**—The annual meeting of this Society was held at the Lee Institute on the 14th inst., Mr. M. N. Buttanshaw in the chair. There was a good attendance of members and the report was adopted. The balance sheet shows a deficiency of just over £2, but such does not exist, as £50 is invested as a reserve fund.

— **FORCED LILIES OF THE VALLEY.**—Mr. W. Iceton has sent us from Roehampton a pot of Lilies of the Valley which he forces so extensively. It is a 6-inch pot containing twenty-one plants bearing good foliage and fine spikes. Most of these contain fifteen large flowers, and are 14 inches high from the surface of the soil. Forcers of these delightful flowers may compare their own with this market sample.

— **FLOWERS AND THE GARDENERS' CHARITIES.**—On the 16th inst. Messrs. James Crispin & Sons provided an exhibition of Orchids and other plants in their show room at Bristol. A charge for admission was made on two evenings. The amount realised was £11 13s., to be divided between the Royal Gardeners' Orphan Fund and the Gardeners' Royal Benevolent Institution. This is a form in which the inhabitants in populous towns may be afforded a treat, and great good be done at the same time.

— **LIVERPOOL HORTICULTURAL ASSOCIATION.**—On Saturday evening last the third paper of the season, entitled "Horticulture in France," was given by Mr. Frank Ker, of the Aigburth Nursery. Mr. Ker related in an interesting manner his impressions and experiences of gardening as carried out in the neighbourhood of Versailles, at which place he served a portion of his apprenticeship. He spoke of what appeared to him a scarcity of private gardens, and described nursery routine. Mention was also made of the great Riviera trade. The great taste displayed by the Parisian florists in decorating their shops, and the bold and graceful way in which the plants at flower shows are arranged, he considered a long way ahead of our own. He said very little fruit is grown under glass, Grapes, Apricots, Peaches, Nectarines, Pears, and others ripening well outside. Altogether he thought that we were quite able to hold our own in the matter of plant-growing. A vote of thanks was accorded to Mr. Ker for his admirable paper.

— **WAKEFIELD PAXTON SOCIETY.**—Considering the inclement state of the weather at the last meeting there was a good attendance of the members of the Paxton Society. Mr. B. Whiteley presided. The essayist was Mr. W. H. Vere, gardener to Mr. W. H. Stewart, J.P., of Milnthorpe House. Mr. Vere, who has thrice previously delivered essays before his fellow Paxtonians, took as his subject on the present occasion "The Fernery." After remarking that no garden, large or small, was complete without a house devoted to Ferns, Mr. Vere proceeded to describe their usefulness, their beauty, and the pleasure to be derived from their cultivation, which is very easy. In the first place he said that the best kind of a house for the growth of Ferns is a lean-to erection with a north aspect. Ferns could not grow freely under strong sunshine, but they require a good amount of light to bring them to their proper colour. In ventilating there should be no direct draught on the Ferns; air boxes should be fixed in the front wall of the house. The stage ought to have a flag or stone bottom covered with about 3 inches of ashes; the Ferns should have a moist atmosphere, and the heating must be carefully attended to. Cleanliness was another chief point to success in a fernery. In the middle of February or the first week in March all dead fronds should be cut away, and the plants repotted in a compost of loam, peat, leaf mould, silver sand, and charcoal. The pots should be perfectly clean, properly crocked so as to insure good drainage, and a little dried moss might with advantage be placed over the crocks. If the pots were new they ought to be soaked in water and dried before being used, and no cracked pots should be used. Overpotting was a mistake with Ferns; they succeed best when the pot is full of roots. Firm potting was necessary, and space should be left at the top of the pot for water. The only plants he would recommend to grow in a fernery were a few cool Orchids. An interesting discussion ensued, and a very hearty vote of thanks was accorded to Mr. Vere for his excellent paper.

— **RAINFALL IN SHROPSHIRE.**—Mr. C. A. Pearse, Oteley Park, Ellesmere, informs us that the total rainfall there in 1894 was 29.76½ inches. August was the wettest month with 3.81 inches, September the driest with 0.70 inch. Rain fell on 219 days during the year. We are unable to publish tabulated records.

— **GROWTH OF BLACK WALNUT TREES.**—Mr. Robert Douglas writes that Black Walnut trees, when planted thinly in a plantation of *Catalpa speciosa*, made as rapid upright growth as the *Catalpas* until they reached a height of 30 feet, while in a small block planted of Black Walnut exclusively the trees at the same age were not 20 feet high.

— **"THE GARDEN ORACLE."**—The publishers of this useful annual publication have favoured us with a copy for 1895. It is as well printed and bound as usual, and contains, besides calendrical matter, a number of excellent illustrations and practical articles on Fruit Culture, Insects, and other subjects. It may be obtained from Messrs. W. H. & L. Collingridge, 148, Aldersgate Street, London.

— **VERBENAS.**—"H. T. M." desires to know the names of the largest growers and exhibitors of Verbenas, going on to say that named collections of these plants are not seen in gardens now, as used to be the case in past years. The reason of this is that Verbenas as florists' flowers have gone out of fashion, and Begonias have come in. Most of the Verbenas now grown in gardens are, like Petunias, raised from seeds annually, but a few bedding varieties are grown under names.

— **SHIRLEY GARDENERS' IMPROVEMENT ASSOCIATION.**—The monthly meeting was held at the Parish Room, Shirley, Southampton, on the 21st inst., Mr. B. Ladhams, F.R.H.S., presiding over a good attendance of members. The lecture was under the auspices of the Hants County Council, the subject, "Hardy Fruit Culture, with Special Reference to Diseases," being especially well dealt with by their lecturer, Mr. C. W. Herbert Greaves, F.R.H.S. A discussion followed, especially with reference to the lecturer's remark that canker is caused by the fungus, *Nectria ditissima*. A vote of thanks was accorded the lecturer on the proposition of Mr. E. Molyneux. Some excellent Orchids were exhibited by Mr. W. Peel, gardener to Miss Todd, Shirley.

— **THE ENGLISH CLIMATE.**—"What compensations," says a writer in "The Country Month by Month," "we find everywhere! When in the tropics, surrounded by such luxuriance of vegetable life, and such a wealth of colouring that when, for instance, my eyes first rested on the Orange groves of Tahiti, and the Palm-clothed heights, their beautiful greens contrasted with the bright red tones of the soil, I felt my imagination had failed to ever picture such a scene as this; but I missed and longed for the song of the blackbird and thrush, and the bracing air of our moorlands and hills. I have lived for five years in New Zealand, and nearly four in the Hawaiian Islands; have visited the beautiful State of California at four different periods, spent some little time in Colorado, been through the West Indies, across Panama, and have touched at some points on the Mexican coast. Yet, in spite of our cold, foggy climate, I say, give me England, with its woods, which, if less luxuriant than the forests of the tropics, are far more enjoyable. Even those days which we call 'grey' are more favourable to thought and mental effort than is that glaring, unbroken sunshine on which other nations pride themselves so much."

— **KINGSTON GARDENERS' ASSOCIATION.**—The first ordinary meeting of the second half of the winter session was held at the Albany Hall on Wednesday evening. Mr. Plumb of the Normansfield Gardens presided. Mr. A. Dean gave the opening address on "Plant Life," taking the seed in its dormant form, showing how committal to warmth and moisture softened the epidermis and caused the lobes or cotyledons to swell and open, thus liberating the germ or dormant plant. Then ensued root and stem growth, the root becoming at once the anchor to the plant, also its mouth or feeder. The uses of the seed lobes or cotyledons in furnishing food for the infant plant were shown, until it could find its own means of subsistence. The gradual evolution of stem, branches, leaves, and flowers in the form of cellular tissue was also pointed out, and specially the purposes leaves serve as breathing organs to the plant. Flowers, their forms and uses, also their fecundatory organs, were described, also the various methods of securing fertilisation through the agency of the proto-plasmic grains found in the anthers, called pollen. Some references to the influence of light, both natural and artificial, on plant growth were also made. A most interesting discussion followed, taken part in by the Chairman and Messrs. Cushon, Martin, Pitcher, and others, and at the close a very hearty vote of thanks was accorded to the lecturer.

— **DEATH OF MR. JOHN MORRIS OF BIRMINGHAM.**—This well known horticulturist, who for nearly thirty years was the manager of Messrs. Pope & Sons' Nurseries, King's Norton, Birmingham, died on the 18th inst., after a very brief illness.

— **A USEFUL PLANT SUPPORT.**—We have received from the maker and patentee—Mr. W. C. Key, Walton-on-Thames—samples of a new form of flower stake. It has been made with a view of obviating the damage to the roots of bulbs, and has two prongs, so shaped as to entirely avoid any interference with the roots of the plant or the bulb, whilst the wire support to which the flowers are tied is stronger and presents a neater appearance than a stick. The supports are made of tinned wire, do not rust, and are practically imperishable. We presume some are made longer than the samples before us.

— **EUPHORBIA JACQUINIAEFLOREA.**—Mr. A. G. Hookings, The Gardens, Olddown House, Almondsbury, writes:—"Seeing an article in the *Journal of Horticulture*, January 17th, page 59, by 'C. H. H.,' I beg to enclose three racemes for your inspection. They are cut from plants grown in 48-size pots from cuttings rooted the first week in May. I have cut some racemes 23 inches long as good as the enclosed. I grow about 100 plants." [The specimens are as good both in foliage and floriferousness as we could desire to see, and represent excellent cultivation. Details of the methods adopted in their production could not fail being acceptable to many of our readers.]

— **MIDDLESBROUGH PARK—DEATH OF THE CURATOR.**—A correspondent informs us with regret of the death which occurred early on Sunday morning of Mr. Charles Anderson, Curator of the Albert Park, Middlesbrough. Mr. Anderson, who was appointed to the Curatorship in 1888, was held in high esteem by the members of the Corporation, and by a large circle of friends. He managed the Park well, and kept its bedding arrangements up to date, though he worked under the disadvantages of smoke from the steel and chemical works, for which this town is famous. Mr. Anderson was an old Drumlanrig man, and leaves a wife and family to mourn his loss.

— **SUMMARY OF METEOROLOGICAL OBSERVATIONS FOR THE YEAR, 1894.**—The year was remarkable for unusually bright and dry weather during March and April, a cool showery summer, and mild weather during November and December. The prevailing wind came from a westerly direction on 103 days. The total rainfall was 27.02 inches, which fell on 249 days, the greatest daily fall being 1.04 inch on August 10th. Barometer (after May 31st only) highest 30.41 at 10 P.M. December 27th, lowest 28.736 at 4.10 P.M. November 14th. Thermometer, highest in shade 84° on July 6th, lowest 10° on January 6th. Mean daily maximum 55.89°; mean daily minimum 41.14°. Mean temperature of the year 48.5°. Lowest on the grass 0° on January 6th; highest in the sun 139° on June 29th. Mean temperature of the earth at 3 feet in depth 48.55°. Total sunshine 1356 hours 41 minutes. There were thirty-seven sunless days. The rainfall is 1.36 inch above the average of forty years.—W. H. DIVERS, *Belvoir Castle Gardens, Grantham.*

— **THE VIRTUES OF WOOD ASHES.**—Mr. J. M. Stahl, Illinois, has much to say in the "American Agriculturist" about the virtues of wood ashes. Speaking of them as a medicine for farm animals, he says he has found them of great value. He has raised swine rather extensively for more than twenty years without cholera or swine plague, and has not lost 1 per cent. of his hogs from disease. He keeps wood ashes and charcoal mixed with salt constantly before his swine in a large covered box with holes 2 by 6 inches near the bottom. The hogs will work the mixture out through these holes as fast as they want it. He selects ashes rich in charcoal, and mixes three parts of ashes to one of salt. There is no danger of the swine eating too much of this mixture, or of pure salt, if it is kept constantly before them, and they are provided with water. The beneficial effects of the mixture are quite marked, especially when the hogs are fattened on fresh Maize. A little wood ashes given to horses is also, he maintains, very beneficial. In thirty-seven years' experience upon the farm he has lost but one horse, and this was overheated in the horse power of a threshing machine during his absence, and the only "condition powder" he has ever used has been clean wood ashes. The ashes may be given by putting an even teaspoonful on the Oats twice a week, but he prefers to keep the ashes and salt mixture constantly before the horses, and has made for it a little compartment in one corner of the feed box. His experience is that the best condition powder is a mixture of three parts wood ashes to one of salt; and that when it is given regularly, and reasonable care and intelligence are used in handling the horse, no other medicines are necessary. Mr. Stahl has also great faith in the efficacy of wood ashes as a fertiliser.

— **ROYAL METEOROLOGICAL SOCIETY.**—The annual meeting of this Society was held on the 16th, Mr. R. Inwards, F.R.A.S., President, in the chair. The Council, in the report, reviewed the work done by the Society during the past year, and also stated that additional accommodation had been provided to meet the growing needs of the library. Forty-five new Fellows had been elected during the year. Mr. Inwards, in his presidential address, dealt with the subject of "Weather Fallacies," which he treated under the heads of Saints' day fallacies, sun and moon fallacies, and those concerning animals and plants. He also referred to the almanac makers, weather prophets and impostors who have from time to time furnished the world with fit materials for its credence or its ridicule.

— **WIND VELOCITY.**—At the above meeting Mr. C. Harding read a paper on "The Gale of December 21st, 22nd, 1894, over the British Isles." This storm, he said, was one of exceptional severity, especially over the northern portions of England and Ireland, and in the south of Scotland. It developed energy very quickly, and travelled with great rapidity. The self-recording anemometers show that the greatest violence of the wind occurred at Fleetwood, where the velocity was 107 miles in the hour between 8.30 and 9.30 A.M. on the 22nd, and for four consecutive hours the velocity exceeded 100 miles. This is the greatest force of wind ever recorded in the British Isles, and is 10 miles an hour in excess of the highest wind velocity in the great storm of November 16th—20th, 1893. At Holyhead the wind in squalls attained the hourly velocity of 150 miles between 10 A.M. and noon on the 22nd. The strongest force was mostly from the north-westward. Much destruction was wrought both on sea and land, and there was a heavy loss of life.

— **ANBURY, OR FINGER AND TOE.**—The disease of anbury, or finger and toe, is met with wherever the Turnip crop is cultivated, but it is probably nowhere more destructive than in the north of England. An experiment bearing on the disease, briefly described in the *Journal of the Royal Agricultural Society*, by Professor W. Somerville, will therefore interest all agriculturists. The experimenter emphasises the fact that the disease is extremely infectious, and may be easily induced by inoculating a soil perfectly sound with soil from a diseased field. Such diseased soil, however, may be easily disinfected by lime, a fact which points to the pathological phenomena being due to an organism—presumably *Plasmodiophora brassicae*. This being so, too great care cannot be taken to prevent soil or diseased roots being conveyed from a field which is diseased to another which is sound.

— **APPLE SCAB IN AMERICAN ORCHARDS.**—The so-called Apple scab is one of the serious pests of American orchards, not only because it causes mis-shapen and undeveloped fruit, but because the affected trees suffer from defective foliage. When it is remembered that the fruit buds of one year are all started the year before, the necessity for healthy foliage every year is apparent, and it is plain that the fungus should be kept from trees on the off years as well as on the bearing years. We have often, says the "Garden and Forest," given accounts of the effectiveness of the Bordeaux mixture against this disease, but it is a matter which everyone ought to understand. Some late experiments made at the Agricultural College of Missouri seem to show that the weaker solutions were about as effective as the stronger ones, and that the first spraying should be given very early, and be followed by at least three others. The second crop of scab, which appears on late Apples seems in this case to have been entirely prevented by spraying.

— **BIRMINGHAM AMATEUR GARDENERS' ASSOCIATION.**—In their second annual report the Committee of the Birmingham and District Amateur Gardeners' Association congratulate the members "on the splendid progress the Association has made during the year." There has been a large accession of new members—ninety-four having joined during the year. Several members have left from various causes, and the total membership (excluding sixty-nine whose subscriptions are not yet paid) is now 185, as against 152 in 1893. In addition to this eight have already been elected for 1895. The number of meetings held during the year was twenty-three, compared with seventeen in 1893; the average attendance being thirty-eight, compared with thirty-two. Should it be found practicable the Committee have in view the idea of organising a show in the autumn, to comprise Chrysanthemums and other flowering plants and vegetables; but the achievement of this project must depend on the assistance which the members generally are prepared to give. The statement of accounts submitted with the report shows a balance in hand of £4 8s. 8d. The Committee feel it is their imperative duty to record how greatly the interests of the Association have been promoted by the untiring energy and self-sacrifice of the Hon. Secretary (Mr. Griffin) and the Hon. Treasurer (Mr. Rees).

— THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.

—At a meeting of the above Society held on January 15th an essay entitled "The Reason Why," was given by a blind member—Mr. Lyon. On commencing his essay Mr. Lyon produced a common red flower pot, and most ably explained "The reason why" a pot of that kind is used in preference to an ornamental glazed one; also, why a red pot is more beneficial to the growth of plants than one of any other colour. Red, he said, was the emblem of strength, energy, and growth. Mr. Lyon was unfortunately deprived of his sight a few years ago, but he still takes a great interest in horticultural matters. His essay was based on scientific principles.—F. L. T.

— ESSEX OAKS.—Mr. J. C. Shenstone has taken a census of remarkable Oak trees in Essex, and he gives, in the "Essex Naturalist," descriptions and illustrations of noteworthy specimens found by him, together with notes on a few Oak trees outside the county. The five trees with the largest trunks in Great Britain, stated in "Loudon's Arboretum," are Cowthorpe Oak, Yorkshire, 78 feet; Merton Oak, Norfolk, 63 feet; Hempstead Oak, Essex, 53 feet; Grimstone Oak, Surrey, 48 feet; Salsey Oak, Northampton, 46 feet. Among trees having the widest stretch of boughs, are the Worksop Oak, 180 feet; and the Oakley Oak, 110 feet. All these trees are not, however, standing at the present time. The Hempstead Oak fell about twenty-five years ago, and a mutilated and decayed trunk is all that remains of this forest giant. A fine tree, 31 feet in circumference, exists in the park at Danbury Palace. The inside of the bole was completely burnt out more than sixty years ago, but the tree has continued to grow, and will probably yet survive many years. Several of the trees mentioned are said to be from 500 to 1000 years old, but there is not sufficient evidence to decide the point at all accurately.

— ROYAL HORTICULTURAL SOCIETY OF IRELAND.—At the last meeting of the Council of the Royal Horticultural Society of Ireland, held at 15, Lower Sackville Street, Dublin. Present: Charles Strong King, Esq. (in the chair); also Messrs. F. W. Moore, Henry Vincent Jackson, Captain Lewis Riall, Hugh Crawford, John Cumming, F. W. Burbidge, Hamilton Drummond, George Carson, and George M. Ross, Secretary. Arrangements were made for the annual general meeting of the Society, which is to be held on Thursday, 17th inst., at the Central Lecture Hall, 12, Westmoreland Street, at one o'clock. Auditors were appointed to audit the accounts for 1894. Mr. Joseph Sweeny, The Gardens, Leopardstown, and Mr. George Sayers, The Gardens, Obelisk Park, Blackrock, were admitted practical members of the Society. The dates for the Society's shows for 1895 were provisionally fixed. Prizes have been presented by the Right Hon. Ion Trant Hamilton, Mr. John Cumming, and by the Council. Extra prizes for Tomatoes, open to nurserymen, were added to the list.

— THE ROYAL HORTICULTURAL SOCIETY.—The meetings of this Society for the present year are fixed as follows; the subject of the afternoon lecture at the Drill Hall is given in each case. The Temple Show opens on May 21st, and the Crystal Palace Show on Sept. 26th. February 12th.—Show in the Drill Hall, and annual general meeting, at 117, Victoria Street, S.W., at 3 P.M. March 12th.—"The Diseases of Tomatoes and Vines," by Mr. Collenette. March 26th.—"Lifting Large Trees and Shrubs," by Mr. T. H. Crasp. April 9th.—"Campanulas from a Garden Point of View," by Mr. J. Wood. April 23rd.—Primula and Auricula Conference. "New Primulas," by Mr. J. G. Baker, F.R.S. "Culture and Classification of Primulas," by Mr. H. Selfe-Leonard. "The Auricula," by Mr. James Douglas. Special Show of Auriculas, Primulas, and Narcissi. May 14th.—"Plants and Gardens of the Canary Islands," by Dr. Morris. May 21st, 22nd, 23rd.—Great Flower Show in the Inner Temple Gardens, Thames Embankment. June 11th.—"Rose Culture under Glass," by Mr. Frank Cant. June 25th.—"The Uses and Organisation of National Botanical and Horticultural Gardens," by Mr. W. T. Thiselton Dyer, C.M.G., F.R.S. Special Show of Hardy Perennials and Cactaceous Plants. July 9th.—"The Effect of Darkness on the Form of Plants," by Mr. Francis Darwin. Great Show of Roses. July 23rd.—"The Carnation in Scotland," by Mr. R. P. Brotherston. August 13th.—"Hardy Bamboos," by Mr. A. B. Freeman-Mitford. August 27th.—"Crotons and Dracenas," by Mr. C. F. Bause. September 26th, 27th, 28th.—Great Show of British-grown Fruit at the Crystal Palace. October 15th.—"Nut Culture in England," by Mr. S. Omer Cooper. Special Show of Vegetables. October 29th.—"Potatoes," by Mr. A. W. Sutton. November 12th.—"Substitutes for Larch," by Dr. Maxwell T. Masters, F.R.S. November 26th.—"Asparagus Culture," by Mr. James Mason. December 17th.—Show in the Drill Hall, and meeting for the election of Fellows.

— THE FEEDING VALUE OF THE LEAVES OF TREES. — This, says a contemporary, was the subject of considerable inquiry in 1893, more particularly on the Continent, where the drought was as severely felt as in this country. Mons. Courmouls-Houlès, of Faillade, Tarn, France, was the first to attempt the ensilage of leaves and twigs of trees on an extensive scale, and in his report he states that the ensiled shoots of the Beech were eaten with avidity by his cows. The animals received from 9 lbs. to 17 lbs. each daily, and the value of the fodder per acre of plantation was found very great, and notwithstanding the drought the cattle were provided with plenty of food, and did well. Mons. Grandean, as the result of his analysis of the silage, estimates the nutritive elements of the ensiled Beech twigs to be equal to those of good hay. These facts are of interest, but we do not regard them of much practical importance, or, indeed, in the light of a new discovery. We have long had proof in parks and enclosures that cattle will eat the tender twigs of various timber trees, more particularly when there is a deficiency in the herbage, and we certainly do not share in Mons. Courmouls-Houlès' views that our woodlands should be utilised for feeding stock.

— A NEW ENEMY OF THE BLACK CURRANT.—Mr. CECIL WARBURTON, Zoologist to the Royal Agricultural Society, reports on a new Black Currant enemy. Early in May specimens were sent to him of a weevil which was said to be doing considerable damage to Black Currant bushes near Bewdley. They proved to be *Phyllobius calcaratus*, a species closely allied to the handsome green weevil *P. Alneti*, which is so commonly to be seen on Nettles. The life history of this species is as yet unknown, but it is probable that it lives in the larval and pupal condition at the roots of the Currant bushes. If this should be found to be the case, the chance of the pest recurring would be materially lessened by the removal of the surface soil during the winter, and either burying it to a depth of not less than 12 inches or mixing with it a liberal proportion of quicklime. Possibly forking in a good dressing of quicklime during the winter season would prove useful. It is suggested that when the bushes are attacked the weevils may be caught by shaking the branches over cloths or boards smeared with tar, this operation being most successful early in the morning and on dull days. It is possible that no great importance is to be attached to the occasional occurrence of this pest, but it is sufficiently destructive to justify strenuous efforts in waging war against it when it makes its appearance.

— BRIGHTON AND SUSSEX "NEW" HORTICULTURAL AND MUTUAL IMPROVEMENT SOCIETY.—The large number who attended the annual general meeting of the above Society on the evening of the 17th inst. is sufficient proof that the new life infused into horticultural matters by its establishment does not wane, but gathers strength as the years roll on. G. M. Kidd, Esq., President of the Society, presided on the occasion. Mr. T. Billing, Hon. Treasurer, presented the balance sheet, which was of a most satisfactory character. From the statement of accounts it was seen that the Society paid prizes to the amount of £372, for music £165, and to the Brighton Corporation close on £78 for the use of the Dome and Corn Exchange for their three shows. The total receipts for the year, including £91 19s. balance from the previous year, was £1158 17s. 5d., the total expenditure £996 16s. 7d., leaving a balance in hand of £162 0s. 10d. Mr. Billing proposed that £100 of this sum be invested. The Chairman remarked that it was in a great measure due to the success of their shows that they were able to add £70 to their balance this year. This is borne out by the fact that £706 19s. was taken at the doors. The balance sheet having been adopted, Mr. Balchin, jun., submitted some alteration of rules, namely, that the word "New" should in future be omitted from the title of the Society, not now being necessary; that ladies be admitted as members, and that instead of a "Secretary" there be an Hon. Secretary and an Assistant Secretary. He took that opportunity of stating, with regret, that Mr. Longhurst had, owing to the demands on his time, resigned the position as Secretary. Mr. Longhurst had been the pioneer of the Society, and they owed him very hearty thanks for all he had done for it. In putting the vote of thanks to the meeting it was suggested by the Chairman and carried unanimously, that Mr. Longhurst be made an hon. member. The latter gentleman in returning thanks expressed his gratification at being able to leave the Society in so prosperous a position. Though unable to continue as Secretary he hoped to be with them as much as ever. After some good humoured remarks about the admission of lady members, the motion was carried. Mr. Kidd was re-elected President, Mr. Balchin, jun., Chairman of the Committee; Mr. Cheal, Vice-Chairman; Mr. Billing, Treasurer; Mr. Johnson, Hon. Secretary; and Mr. Rupert Miller, Assistant Secretary. Mr. Longhurst was elected on the Committee in the room of Mr. Miller. Votes of thanks terminated an enthusiastic meeting.—R. I.



THE PORTSMOUTH SETTLEMENT.

MR. CHARLES J. GRAHAME writes to say he is sorry we think that the decision of the Committee of the National Rose Society in endorsing the action of the Honorary Secretaries relative to the show fixtures in 1895 "settles the matter" in dispute. But it does settle it all the same, as no one expects the members of the N.R.S. are going to turn out the Committee forthwith and elect a new one to alter the present arrangements. As that seems to us the only way in which the decision arrived at can be altered, "settled" it must be, however much some persons may be disappointed. Mr. Grahame says he shall not write to the *Journal of Horticulture* any more. He has had a short term

Melliar's own heart, who shares with his helpers the work—the real and actual work—of budding and growing the plants, and staging the blooms. In one photo we see "acres of Roses," including 299 cut-backs of Mrs. J. Laing. Only a true amateur rosarian would be so exact in the counting. To this field is added a new strip, 170 yards long by 11 yards wide, and other slices may be expected to follow, for there appears to be plenty of room, earnestness, and zeal.

In another photo—a sort of snug corner of Roses—we see the work going on, for it is budding time. There stands the master "taking out," two men inserting, two tying, and the young "Master Chambers," head gardener of the future, looking on. Then follows the showing time, and at Gateford it seems to take five strong men to stage a box of Teas. Here they are all in a row, life-like photos. On the left Mr. J. Grant, rosarian, cutting the blooms. Mr. T. Clifton, under gardener, receives them and hands them to Mr. F. E. Chambers, head gardener, who trims them, passing them to the head over all for "boxing;" Mr. C. Stubbings, the gamekeeper, appropriately acting as trapper—*i.e.*, managing the lid as the box stands on the Rose barrow. The coachman, stud groom, and footman are not visible, but the assertion may be ventured that if they were wanted among the Roses



FIG. 13.—MR. MACHIN'S ROSE GARDEN.

and a lively one, and in allusion to what has transpired gives as a finale "*de gustibus non est disputandum.*" Quite so, and there the matter may well rest at present.

MR. MACHIN'S GARDEN AND ROSES.

VERY much to the fore of late has been the name of the great amateur rosarian Mr. Henry V. Machin of Gateford Hill. Possibly this may have suggested the sending to us of a set of photographs by a gentleman into whose hands they fell some time ago. We have had the pleasure of seeing Mr. Machin's Rose field, his drying-ground roserie, his nursery, and interesting old garden. The latter is quaintly picturesque with its trimmed shrubs and bowery-like character, relieved by stately trees and brightened with old-fashioned flowers, some of which seem to have been very much let alone for generations. There is a charm in such old gardens as this, in which things appear to have established a right to be just where they are by long possession, and they are also living memorials of those who loved them in past years. The young squire of Gateford does not attempt to modernise this old garden and end, as many have done in dealing with similar examples, in spoiling instead of improving. Mr. Machin does his modernising elsewhere. He takes to the fields, and displaces Turnips with Roses.

That the owner of this much-cared-for and fertile Nottinghamshire estate is a very real and ardent rosarian, the photographs before us demonstrate. We should take him to be a man after Mr. Foster

they would have to be there, or—no, we will not suggest an unpleasant alternative, for Mr. Machin is one of the kindest of masters, considerate to all, loved by all, and who therefore give him willing and faithful service. He is known as a "thoroughbred who runs straight," esteemed alike by his exalted associates on the magisterial bench, by his tenants, and his workers. He is in a word an English gentleman, and unquestionably a leading amateur in the Rose world. No doubt honours are in store for him, and he will deserve all he wins. We are obliged to the sender of these photos, and reproduce one as the most characteristic of Old Gateford.

MR. FOSTER-MELLIAR'S BOOK.

I HAVE just read with very great interest and profit Mr. Foster-Melliar's "The Book of the Rose," and have found therein many little side lights and observations on the Rose which I thought were known only to myself and a few particular friends, and which prove the author to be a close observer and a clever fellow! Now I am not going to praise the book further just now—it can make its own way; but I wish to point out one or two shortcomings. We, the rank and file of the nation, look to the Church, the Bar, and the Stage for the Queen's English. It is their privilege to uphold its purity, and to be looked on as its champions.

On what authority, may I ask, does Mr. Foster-Melliar use the phrase "different to?" Not Thackeray, for he withdrew it. Then, on pages

262 and 286 we get the word "aggravating" where "irritating" or "provoking" is meant. This is a common error, but only common folk may be excused making it.

The author must be congratulated on the selection generally, and the publishers on the excellence of the illustrations. Only photographers and printers know the technical difficulties in the way of producing such. Plates facing pages 263 and 292 could have been improved by the reduction of the straggling high lights which draw the eye to their contemplation.—ARCANUM.

ROSA BORRERI.

I AM looking into the history of Rose-growing in the classics, and I feel sure I may make your interest in it an excuse for troubling you with a few questions.

The *biferi rosaria Pæsti* have always been a puzzle. In Murray's *S. Italy*, I., p. 182, it says, "These Roses have disappeared, though a few plants may be found near the ruins of the temples, flowering regularly in May, which Mr. (Dr.) Hogg states agree best with the *Rosa Borreri*."—(Linn. Tr., vol. xii.). I have no access to the Linnean Transactions, and I do not know what the *Rosa Borreri* is. When I was at Pæstum, twelve years ago, it was winter, and I made nothing out of the Roses. Can you tell me whether the Roses differ here at all from the ordinary wild Rose of the South of Europe?—G. E. J.

[*Rosa Borreri* is a native species, so named by Mr. Woods in compliment to Mr. Borrer of Henfield. It is scarcely distinguishable from *R. micrantha*, and is identical with *R. inodora* of Agardh. We do not know what the Rose of Pæstum of Virgil's *Georgics*, book iv., ver. 119, is, further than it is one of those mythical subjects which from time to time give rise to some discussion.]

ROSA RUGOSA.

THIS grand single and very distinct Rose has been nearly a hundred years in England, but never, I believe, until lately taken in hand for improvement. I rejoice to say this has now been done by Suttons of Reading. Mr. Martin, their famous hybridiser, has been three years at work on it, and has lately favoured me with some short notes of his operations. He has every facility. A grand hedge 40 yards long, and about 4 feet high, divides a certain portion of the Portland Road Nurseries. Heps on this have been fertilised, with the following results. I should add that Mr. Martin is enthusiastically in its favour. He writes of it:—"Seven months of the year it is clothed in a mantle of beautiful and profusely serrated foliage, which for cutting and arranging with other flowers for indoor decoration can scarcely in any way be equalled. The display of the handsome heps, glittering in the autumn, fine rosy scarlet to a clear yellow, with others of a bronzy terra-cotta bordering on the edge of the beautiful foliage, causes everyone to admire it. For table decoration it has a charm of its own. In the woods, as a covert for game, it is useful and attractive when once established." This is a digression, but due to Mr. Martin. He has passed over *rugosa alba* as too feeble a stock, and is seeking for his new colours and character in *R. rubra*. Blooms on the great hedge were fertilised in 1890, "as soon as the buds were formed, early in the morning, to prevent the action of insects or the wind performing the act of fertilisation from its own or foreign pollen." There will be the less danger of this, as, I grieve to say, *rugosa* is the only Rose now tolerated at the Portland Nurseries. This has been crossed with the old York and Lancaster.

It is to be regretted that Lord Penzance's wider and more liberal selection of parent pollen was not adopted. This, however, is not the business of the public. We shall be thankful even for a new striped variety. It is an interesting matter of comparison "we gathered pods of *R. rugosa* crossed naturally," Mr. Martin says; in respect of which, "on opening the seed apples we found the crossed pods contained only a very few seeds, and of only half the size of those from the naturally crossed pods." And now for results. "We sowed in heat early in 1891, and at midsummer, 1892, we found the naturally fertilised seed germinating fruit; later on we found the crossed seedlings appearing, very much shorter in growth, with smaller leaves and more spiny." They had a narrow escape from a severe-minded boy who was on the point of throwing them away as being so inferior in size to the others. They have had every care, but have not bloomed even yet. "In 1893," says Mr. Martin, "we placed plants of each section in heat, but no flowers were produced on either of the six plants, though the wood was well ripened." I have just seen them all planted out, well fed, and protected, twenty-six plants "from the artificially and naturally crossed plants." They can hardly be so unreasonable as to refuse to bloom again this year; and when the N.R.S. visits Reading in 1896 will no doubt be in full force; rivals then of Lord Penzance, and repaying Mr. Martin for his paternal pains.—A. C.

MEDALS FOR TROPHY CLASSES.

I AM glad to find that the above subject is again being brought before your readers, and think that the suggestion for gold medals (on page 35) to accompany the trophies is a most excellent one. It is certainly very hard on an exhibitor who may have fought hard and won the National Rose Society's trophy (one of the most valuable prizes ever offered at a Rose or horticultural exhibition) to have no memento of the honour after the year has expired.

I have known more than one of our first rank exhibitors decline to compete with his best Roses for the championship, and "go in" for a piece of plate that would become the winner's absolute property, so that to some of our exhibitors to "have and to hold" a small prize in kind for a lifetime is preferable to holding even the champion cup for

one brief year. It would appear from this that something more than the mere honour is needed to secure the best Roses in the premier class.

The expense of the suggested medals might be met by dropping the two classes that were added in 1887 to the provincial exhibitions, and allow the Jubilee trophy to be offered in the largest amateur and open classes, as is done at the metropolitan exhibition. Such an arrangement would effect a saving of £12, which would more than provide the five medals that would be necessary. This suggestion is, I think, better than either "J. B.'s" (page 35) or "W. R. Raillem's" (page 50). Should none of the suggestions meet with approval, how would it act to impose an entrance fee in the special classes of, say 5s., which could go towards supplying the medals?

Any of the above arrangements, except "W. R. R.'s" (which I suppose would not be compulsory) would still leave past winners unrecognised, which is not desirable, for they have been, and many still are, liberal supporters of the Society, and any act of liberality (such as medals for past successes) on the part of the Society would in all probability be repaid twofold in increased subscriptions and offers of special prizes by the recipients. The medals would prove a source of great pleasure to every winner, more especially to the one who from ill health or any other cause may have had to give up exhibiting.—A NORTHERN MEMBER.

PEELING AND CLEANING VINE RODS.

WHILE not advocating the entire removal of the outer bark from the rods of Vines I do not think as much harm accrues from so doing as Mr. Craven (page 6) would have us believe. It is well known that Vines which are denuded of the greater part of their bark are quickly covered again with more. Neither do I think that the Vines so peeled increase so slowly in the diameter of their stems as some persons imagine. I have taken a few measurements from the stems of Vines growing not far from where I write, and the barking they have many times undergone does not appear to have prevented their making good progress during the fourteen years they have been growing.

One house is devoted to Muscat of Alexandria entirely. One Vine at 6 inches from the ground is 8½ inches in circumference, at 2 feet 6 inches from the same point it measures the same. Another rod 4 feet from the top of the border is 5½ inches around the rod, at 9 feet from the base it is still 5½ inches, a third rod at 3 feet measures exactly 7 inches. In an adjoining house Gros Guillaume at 6 inches above ground measures 9 inches, and at 3 feet it is the same size. Lady Downe's at 2 feet measures 6½ inches, and a Black Hamburgh at 1 foot girth 6 inches, at 6 feet it is 5½ inches round. In all cases the measurements were taken between the spurs. The Vines have yearly borne heavy crops of fruit, and produced bunches good enough to win premier awards at shows, and the crop of Muscats borne last year was the best yet produced by these Vines. I am not an adviser of the close peeling process, but should not hesitate to peel off the bark if circumstances necessitated its removal.

In my opinion it is the only way to cleanse Vines from that insidious pest mealy bug, and that alone will not do it. Mr. Craven may think himself extremely fortunate in not having had to deal with Vines much infested—if at all—with this pest. If his experience had been the other way perhaps he would have resorted to more extreme measures than simple washing with soapy water. Mr. Craven has produced very fine Grapes from Vines that I am well acquainted with, and has just cause to adhere to his present system of treatment, but whether readers generally will accept his dictum that the removal of the bark hinders the expansion of the rods and stems to the extent he would have us believe is another question; personally I think otherwise.—E. MOLYNEUX.

I HAVE been pleased by reading the interview with a noted Grape grower. I think the remarks have been full of common sense from beginning to end—a great thing in gardening. With regard to stripping Vines of their bark, and scraping into the skin with a knife, I do not think there is any common sense in that. I go over the Vines with my hands, and remove any loose bark for appearance sake. I have had 247 bunches of Black Hamburgh and Foster's Seedling on four Vines, two each, in a quarter-span house, 27 feet by 18. I have both sorts hanging now. I cut eight bunches last week. When I had finished limewashing the walls, with paraffin in the mixture, I painted the Vines all over with the same compound. I was troubled a little with the berries of Foster's Seedling splitting when they were swelling, but I attributed it to an extra dose of nitrate of soda which I have been using as a change for the Vines.—H. C., *Morefield*.

SOME correspondence having recently appeared in the *Journal of Horticulture* under the above heading, I venture to send a few lines; and although some of the remarks which I shall make will not coincide with some that have already appeared, I do not write with any disrespectful feeling towards anyone, and should a controversy follow let it be a friendly one. Cleaning Vines is the question at issue, which means cleansing them of some parasite with which they are infested. If it be mealy bug or red spider, I maintain that it is necessary to strip them of all loose bark in order to get at the insects, and no amount of washing or painting on the top of the bark will affect the life of the insects that are underneath it. This I have proved many times. I well remember a very bad case when employed as a subordinate in a gentleman's garden in Worcestershire some years ago. Being winter time, and

the Vines pruned, knowing they were badly infested with mealy bug, I began, as was my duty, cleaning them, and started stripping all the loose bark off them first. I had not proceeded far when the chief came in, and to my surprise sharply reprov'd me for my line of action, saying he did not like the plan of taking the bark off, and requested me to stop. After exchanging a few remarks about it, I asked him what harm it did taking it off. He answered, "I will show you what an old master of mine says about it," and he went into his cottage and returned with a book in his hand, which proved to be a work on the Grape Vine written by the late Mr. Meredith of Garston, of Grape-growing fame. The book was opened and a passage read to me to the effect that if the bark was stripped off the Vines the sun had a mischievous influence on the flow of the sap.

I was then told to paint the Vines with a strong insecticide, and keep a sharp look out for insects when the Vines were started. The houses were cleaned and painted, but soon after the heat was applied the enemy showed itself, and would not be subdued by the action of two camel's-hair brushes and insecticide daily applied by two men. True it was a bad case, and as the season went on became worse. The filthy pests got into the bunches of Grapes, and many of these instead of going to the table went to the rubbish heap. This case caused me to make a resolution that if ever I had to deal with mealy bug on Vines on my own responsibility, I should not hesitate to use drastic measures to eradicate the worst pest a gardener can be troubled with.

Notwithstanding what has been advanced in favour of keeping Vines clothed with bark, I am not yet a firm believer that it is so much needed as some gardeners think it is. The bark has performed all the functions which is required of it when it becomes loose. It does not adhere to the stem after the new skin is matured, and I have seen Vines carry good crops of Grapes suitable for home consumption and exhibition year after year that have had all loose bark taken off at the winter cleaning. Take another instance. Young Vines newly planted are cut back to the bottom wire on the roof of a vinery to induce them to make good fruiting canes for the next year. The Vines will ripen from four to six good bunches of Grapes, yet they have but one thin skin, and the sun does not appear to work any evil influence on the flow of sap; why then should it on older Vines with a thicker skin on them after the loose bark is taken off?—R. MORSE.

I CAN with confidence say, through years of observation, that peeling Vines is detrimental to their well-doing, though I have a case here under my notice where Vines have done remarkably well after severe peeling.

When the Vines under my charge are free from the much-dreaded mealy bug I simply take away the loose hanging bark, and give the rods a thorough washing, or rather scrubbing, using a new scrubbing-brush with warm water and 1 oz. of softsoap to the gallon. I make a practice of doing this in all my fruit houses at the close of every season, as prevention is better than cure; but in an extreme case I had five years ago I carefully stripped off all the bark I possibly could, then gave a thorough scrubbing with warm water and softsoap, repeating three times at intervals of a fortnight after the Vines were started. I also saturated every inch of wood and iron with neat petroleum, well working it into every crevice. Afterwards I gave a good scrubbing with hot water and softsoap, and with careful watching after this treatment I have been very little troubled with the pest.

Probably Mr. Craven will remember the Muscat of Alexandria shown at Liverpool by me in 1892, which gained first honours, the bunches weighing 5 lbs. each. These Grapes were cut from the Vines in question. At the same time my belief is that Vines are much better not stripped. I have never made a practice of using strong insecticides, nor do I believe there is any need of them, neither of the old-fashioned fad of coating Vine rods with a thick substance, such as clay, soot, and other mixtures. In my opinion these coatings only benefit insects, as affording them shelter during the resting season, the pigment cracking just at the right time in the spring to liberate them. Scrubbing with softsoap and warm water is, I am sure, the safest way of cleaning Vines. There is nothing I like to see in Vines better than the natural colour, with abundance of bark.

In the case of the Vines I found in such a bad state I not only dealt with the rods and houses, but with the roots also. I first examined the border; scarcely a root could be found within 9 inches of the surface. I took out what soil I could about 15 inches deep, and found the drainage was good; the roots were also better at the bottom, so I made a mixture with eight loads of good turf, cut 4 inches thick, from a very old pasture, one load of old mortar rubbish, 4 bushels of soot, three barrowloads of burnt refuse, and 2 cwt. of Thomson's manure. When filling up the border I laid all the roots I possibly could about 6 inches below the surface, at the same time notching them at various lengths. During the growing season I gave a good watering with sewage. The next year the border was so full of fibrous roots that I could not remove any soil for further dressing. I am pleased to say the Vines are still in good condition.—W. COATES, *Darnhall Hall*.

I AM very interested in this question, and would like to understand a few points suggested by Mr. William Taylor still better than his letter to you on the subject conveys (page 55), as I am free to confess I yearly peel off all loose bark that might harbour spider or bug in my vinery, and then wash with a strong creamy preparation of boiling water, sulphur, and a fractional part of petroleum, of course allowed to cool.

1, What objection is there to the "peeling" off of the loose bark

so long as the inner bark and the sap circulation is not interfered with? I ask this, as although an admirer of Mr. Taylor's writings in the Journal for nearly a score years, I cannot recollect the discussion of the point.

2, To what does Mr. Taylor attribute the "flagging" and "smallness" of the berries in connection with the peeling? Is it from evaporation from the stems or leaves? and if from the latter, how does that arise from the above operation?—W. J. MURPHY, *Clonmel*.

Mr. W. TAYLOR's (page 55) interesting article on the above subject exactly coincides with my opinions. He objects to peeling the bark from Vines on principle, only resorts to it when absolutely forced by circumstances, and trusts he may never have to do it again. Evidence is given as to its ill effects on the Vines by the unusual manner in which they behaved with their jackets off. It is my belief that stripping off the bark causes excessive transpiration, consequently impaired vigour. I shall feel interested to know how these same Vines shape themselves for the next year or two, and no doubt your correspondent will be kind enough to give the information at the proper time.

Mr. Taylor seems to be fixed similarly to myself in respect to light soil. I, too, have had to incorporate clay to give more body. I think red spider is always more prevalent where such soils exist, especially when resting on sandstone or gravel. Under the best management Vines usually become more or less infested with red spider, notably under the above conditions, with perhaps borders all inside and sharp-pitched houses. Where localities favour red spider, as in Mr. Taylor's case, and I might say my own, does it not make its entrance through the ventilators and the laps of the glass? Other places again are remarkably free from this pest, and I recollect the Vines at Wycombe were rarely attacked to a great extent, owing, I presume, to the humidity of the valley, but then mildew was a foe to beware of. I note the fine proportions of the Bath Vines, and the pang it seems to have caused the good man to be compelled to undo what it had taken him years to achieve.

Probably in excellent Grape soils Vines would stand the barking process for a short time while they were at their best, but would it last? Would they continue to produce first-class examples? I should like to hear the experience of someone who has followed this practice for a long time, as it would be instructive. The efforts required to secure high-class Grapes renders it necessary to husband the strength of the Vine at all times, for I am of opinion that the most trivial matters often mar perfect finish. Every exhibitor knows the great difficulty of finding such samples in quantity for meeting powerful competitors. Most of the Vines here are over twenty years of age, and had been subjected to stripping. Young canes trained from old rods a few years ago, and also young Vines planted about the same time, and not peeled, will soon overtake them.—J. J. CRAVEN.

PEELED Vines always give me an uncomfortable feeling. It is obvious that such extreme measures would not be resorted to unless prompted by urgency to eradicate an insect pest. Yet it savours of the barbarous. The happy medium appears preferable—viz., to remove loose bark, rubbing off the shelly particles from around the spurs, where bugs do most abound. The more drastic measures of close peeling, as practically illustrated by Mr. Taylor (page 55), appear, as he hints, to be sufficient for once in a lifetime. The tar dressing, as advocated by me in a short article (page 303 of the volume ending June last year), has given me the best results. My recipe is, to a gallon and half of water, in which about 2 lbs. of softsoap has been dissolved, add sufficient clay to make it of a creamy consistency. To this add half a pint of gas tar, thoroughly mixing, and giving an occasional stir when using. I am aware that some recipes include more gas tar, but its nature emphasises caution. The mixture as prescribed I believe to be well within the bounds of safety, and efficient. To complete the thorough cleaning of a vinery I would strongly urge (as I have done previously) a coat of white lead paint being given to all wood, ironwork, and wires, with a limewashing to the brick or stonework where practicable, using freshly slaked lime for the purpose. Happily, the humid atmosphere of Ireland is in some measure inimical to red spider, which, as an insidious foe, is perhaps to be more dreaded than mealy bug.—E. K.

KENTIAS.

THESE indispensable Palms may truly be called the friends of gardeners, for among the numerous species and varieties of Palms which now find a place in British nurseries and gardens none is so thoroughly adapted for house decoration as the several varieties of Kentias. Since their introduction they have been the great rivals of *Seaforthia elegans*, and I think are now steadily driving the latter out of the field, simply because they will last so much longer in the heated atmosphere of dwelling rooms in the winter without showing signs of disfigurement than will the most sturdily grown plants of *Seaforthia elegans*, whose fronds lack the great substance necessary for the purpose.

Where only small plants are employed for room embellishment this matter may not appear to be of much moment, but the custom of using large plants for this purpose is largely on the increase, so much so in fact that specimens from 6 to 8 feet in height, growing in comparatively small pots or tubs, are in great request, and trade growers sometimes find a difficulty in supplying the demand. This I think will make it clear that when plants of this description are used the species which

suffer the least when subjected to such conditions should be obtained, because if much disfigured by the loss of leaves it takes two or three seasons to bring them into a presentable condition again.

Chamærops excelsa and *Latania borbonica* are both good lasting Palms, and answer for some positions, but they are too heavy in appearance to be used freely, and, moreover, it is necessary, in many instances for the fronds to have a fine arching habit, and stand clear for passing under. In this respect *Seaforthia elegans* bears the palm, as the long straight stems allow plenty of head room before the plants have become sufficiently bulky to require inconveniently large tubs.

Against this advantage we have, however, to set the fatal drawback of deficient lasting qualities. This allows Kentias to come in an "easy first," as they are but slightly less elegant in appearance or deficient in length of stem, while their lasting qualities stand unrivalled. *Fosteriana* is the best variety for use in a large state, and I would strongly advise all who require large Palms for the above purpose to obtain that variety.—H. DUNKIN, *Castle Gardens, Warwick*.

THE LATE MR. THOMSON OF CLOVENFORDS.

A CORRESPONDENT writes:—On Wednesday, the 16th last, in Caddonfoot churchyard, on the banks of the Tweed, and amidst a multitude of mourners from all parts of Scotland, and of many professions, the grave closed over the remains of the late Mr. William Thomson of Clovenfords. And, though a good deal of interesting matter has been, and will be, written in gardening and other papers about one who was so widely and well known, and so much respected, as I knew Mr. Thomson for many years, and had ample opportunities—professional and otherwise—of judging of his abilities and opinions, I should like to add a few brief notes regarding him.

Mr. Thomson was known—personally or by repute—not only to those interested in horticulture, but also to many who have no personal connection either with amateur or professional gardening. His book on the Grape Vine, written when he was gardener at Dalkeith Palace, contains merely the nucleus of the encyclopædic knowledge of that subject, which, by long and careful study and experience, he afterwards acquired. By those competent to judge he was considered the most eminent authority on the Grape Vine. His complete and accurate knowledge of the physiology and of the analysis of this plant, and his acquaintance with chemistry, enabled him to produce a manure which, in addition to being suitable for other plants, contains all the elements that the Grape Vine requires; hence the enormous crops of finely finished Grapes which are year after year produced by the Vines at Clovenfords, where many young gardeners, not only from all parts of Britain, but from France, Germany, and other continental countries, go to perfect their knowledge of Grape growing.

For more than half a century preceding Mr. Thomson's death a large number of young gardeners were constantly either under his authority or in his employment, and to such men he was ever ready with wise and kindly counsel and encouragement. Many a young man has been stimulated to study and self-improvement by Mr. Thomson, who never failed to help a deserving man to better his position. There are men all over Britain and abroad who hold responsible and lucrative posts which, in a great measure, they owe to Mr. Thomson's recommendation. His firmness, kindness, and justice made him respected as a master, and his willingness and ability to give sound and sufficient reasons for every plan he adopted induced the asking of questions, the answers to which set others thinking for themselves. Apart from his professional skill, his gentlemanly and agreeable manner made his society and advice much sought after by those engaged or interested in horticulture.

His knowledge of and interest in chemistry, meteorology, agriculture, forestry, and other subjects brought him into contact with many who had no interest in gardening. In advocating his views in gardening periodicals, in newspapers, and elsewhere, argument rather than force of language characterised his statements. This, I believe, resulted from his liberal mindedness, and his careful consideration of every subject on which he expressed an opinion. He will, therefore, be greatly missed by many outside his own family circle, and large numbers of his gardening friends. Take him all in all, Mr. Thomson of Clovenfords was one of the ablest men that the horticultural world has yet produced.

JUDGING—A COURT OF APPEAL.

"C. K." (page 34) speaks presumably from personal experience on this vexed question, and apparently that experience has not been a happy one. There is much in his able article that I can endorse from my own experience on this side of the channel, but there are also inferences to be drawn from it that one would fain believe exist only in his imagination. He says, "Some people affect to believe that there is no such thing as favouritism or partiality with judges, but it is one of the worst features of our show system." Well, I am one of those people who not only affect but do believe that this does exist and does not exist. It exists in the judicial mind so far as the individual ideal of form, colour, or variety in the exhibits is concerned, and other points which need not be mentioned here. To settle this matter the need of a court of appeal has been frequently urged—viz., clearly defined rules drawn up by competent authorities in those sections where controversy most arises, and confused ideas prevail. Ever and anon this question

crops up, and sound logic is advanced urging the need of something definite, but like the old farmer with the squire's claret at the audit dinner, "Its wery good, but we don't seem to get no forrader."

In looking at the other view, in which "C. K." tacks on those hard adjectives of "dishonest and incompetent," I may say that my observation is taken from neutral ground. In the past as a judge I have had some years' experience, as an exhibitor not less, and at the present being neither, the position appears to be one of vantage to judge the judges and the grumblers. Exhibitors who have not been behind the scenes—who have not at any time acted in the judicial capacity—are prone to think something in the nature of a dark séance is enacted when they are "belled" out of the tent. Their mind is already made up as to where the prize ticket should go, and if it gets on the wrong stand they then go for the secretary, and he, poor man, has a bad quarter of an hour. Supposing the court of appeal existed, may I ask what would be its elements? Experts of course. How many? Three say. Would not their super-excellent knowledge be better employed in the first hand judging? And how few societies could afford this luxurious litigation, even supposing it would or could give satisfaction? Some cases might not be settled there. If the verdict of those good men and true was reversed on appeal they might ask for a higher court, and between the whole land the society in the Bankruptcy Court.

Something is needed I admit, and some things will never be attained whilst human nature is human nature, but many of the difficulties might be met by the combined wisdom of a Society's ruling powers embodied in their schedule. If societies enveloped in the thick hide of self-satisfaction persistently ignore the duties they owe to themselves, to judges, and to exhibitors, the Nemesis of internecine litigation may be desirable from some points of view, but can hardly add to their dignity.

To return to "C. K.'s" unhappy experience, which fortunately has not been mine, I should think that "rotteness in the state of Denmark" (or wherever he alludes to), must sooner or later bring its own punishment, and that will be death. If Societies employ at least one expert in each section to act in concert with the gentleman amateur and the practical gardener, and time and arrangements permit of the onerous duties receiving justice at their hands, much of the present grievance would disappear. If the judges are curtailed in time, and feel that the necessary cool deliberation with attention to fine points cannot be given, they would be justified in declining to act—even at the last moment—rather than to incur the risk of having favouritism and partiality coupled with their names, not to mention more unpleasant suggestions. The subject is one in which I have, as a judge and exhibitor, given some thought to, but it must be understood my field of observation is limited to Irish soil, in which I can honestly affirm neither partiality nor favouritism are known, although there is room for improvement.—E. K., *Dublin*.

[Since the above article was in type we have received the following P.S. from our correspondent:—"May I suggest a footnote that my remarks were penned previous to 'A. D.'s' letter being printed? Our views are so nearly identical that it might be inferred I had stolen his ideas." The evident fertility of mental resources possessed by "E. K." forbids the suggestion.]

ROYAL HORTICULTURAL SOCIETY.

JANUARY 15TH.

SCIENTIFIC COMMITTEE.—Present: Mr. Michael (in the chair); Rev. W. Wilks, Dr. Bonavia, Rev. G. Henslow, Hon. Sec.

Primula obconica and *P. sinensis* Causing Eczema.—Further observations were made upon this subject brought before the last meeting. The fact that the Chinese Primrose occasionally produces the same effect as *P. obconica* has been discovered by Messrs. Sutton of Reading; but the ill effects appear to be only in the case of very few persons who handle the plants. It was the variety known as *P. s. alba plena* which had the property. As a contrary case, it was observed that with regard to the very poisonous Neilgherry Nettle, none at Kew could touch it except one person, to whom it was innocuous. Mr. Michael added that very similar differences occur when hairy caterpillars are handled.

Fertilisation of the Chrysanthemum.—An interesting communication was received from Mr. H. Briscoe-Ironside of Burgess Hill on this subject. It had been thought by some writers, following Darwin a little too implicitly perhaps, that "the anthers of the *Chrysanthemum* . . . as of all members of the *Compositæ* . . . are proterandrous . . . and naturally adapted for cross-fertilisation." (Burbidge.) The writer, quoting this passage, observes that from his own observations in Italy that the *Chrysanthemum* is quite, if not more, readily self-fertilised than naturally crossed. He finds, too, that the seed resulting from the self-fertilisation of the disk-florets gives very poor results from a horticultural point of view, and he thinks it to be "most probable that this is the seed which is advertised and sold, and which, as we learn, gives such poor results." It has now been generally recognised that the *Compositæ* trust quite as much to self-fertilisation in Nature as to intercrossing, and although the florets are seemingly adapted to the latter process, the former is quite as likely to take place, many inconspicuously flowering species, as Wormwood and Groundsel, being in all probability never visited at all. With reference to the "inferiority" of the flowers resulting from self-fertilisation, this is the rule; hence arises the importance of intercrossing for floral improvements; but the difficulties involved in trying to avoid self-fertilisation in the *Compositæ* are very great, in consequence of the minuteness and proximity to each

other of the florets. The writer proceeds to quote the following observation of Mr. Burbidge:—"The Chrysanthemum had ages ago become naturally adapted for cross-fertilisation, and to that fact, no doubt, is due its variability in Nature and our own gardens." Mr. Ironside thereupon asks:—"Why does history refer conspicuously to the varieties raised by their comparatively few raisers? Surely if cross-fertilisation were natural the raising of new varieties would seem a common event not worth chronicling?" This question might be asked of all other plants as well. The reply is that Mr. Burbidge here refers to *one* cause of variability, *intercrossing*, and omits the commoner one, *a change of environment*, which may give rise to it as well. With regard to the former there is always the antagonistic process of self-fertilisation to overcome. This fixes, or tends to fix, characters, while the other tends to alter them. Self-fertilisation, however, is the *rule* in Nature, notwithstanding the numerous contrivances for intercrossing. Mr. Ironside adds the further question:—"Do our English authorities, when describing the seeding or fertilisation of flowers not indigenous to the soil of Great Britain, give their opinions of experiences based on their having seen them in their native state, or otherwise?" Perhaps some author will reply to this question.

CLEOME HEPTAPHYLLA.

A CORRESPONDENT has had seeds of *Cleome heptaphylla* sent to him, and desires a description of the flower and a little information as to the culture essential. With regard to the form of the blooms, the illustration (fig. 14) shows it admirably, while the colour is white with long purplish stamens. The plant is of moderate height with seven-lobed leaves. It can be treated similarly to many other annuals from warm climates—namely, the seeds are sown in heat, and the young plants grown in light soil in the stove, or placed during the summer in the conservatory. It flowers late in the summer and autumn, and lasts some weeks in good condition with ordinary care.

TABLE DECORATIONS.

I AM sure this is a subject which concerns every practical gardener. I am interested in and should like to learn something new about it. Circumstances alter cases, and what is tolerated in one place is not allowed in another; for instance, I have been obliged to change my plan of decorations from what I had learned at Trentham under those accomplished decorators, the late Mr. L. Stevens and the present Mr. P. Blair.

I have lively recollections of the decorations of the large dinner table there. It was fashionable in those days to have groups of plants on the table, consisting of Orchids, Ferns, *Panicum variegatum* and others; also by way of change Grapes and dwarf Apple trees in pots, while suitable branches to make groups were employed during the autumn and winter months. On one or two occasions I remember an uncommon but unique arrangement being worked out there called the snowstorm, but I would not advise anyone to attempt it only on a large scale. It consists of light and graceful branches of Birch as specimens for each end of the table, to be surrounded by suitable branches and twigs of hardy shrubs. In the centre we used a plateau of glass, around which we arranged points of Conifer branches inserted in balls of clay mossed up, which represented specimen trees around a lake. The whole of the branches were wetted and dusted with common whiting before being arranged, and at the finish were "jack-frosted" over with a material obtained in town. Such an arrangement caused quite a furore at Trentham on several occasions when there were special visitors there.

I am in favour of using one or two colours only for the same occasion, and where Orchids are grown in quantity we have an abundance of material at hand for table work. During the autumn and early winter months I make use of variegated leaves such as Maples, *Ampelopsis*, and Vines; they work in well with Chrysanthemums, and so do long trailing pieces of variegated Ivy. I always aim at using material which will blend harmoniously; for instance, Orchids, Maidenhair Fern, and *Asparagus plumosus* are inseparable. Roses with their own foliage seem to me to be the proper dressing for a display of these flowers. I could describe more minutely several designs suitable for round and square tables if necessary. I believe it was the fashion in London a year ago to have table decoration carried out in the way of sprays laid on the tablecloth with an abundance of *Myrsiphyllum* trailing about in vacant places. I shall be pleased to hear from some of our able gardeners who are up to date in the work in question.—HERBERT MAY, *Markree Castle Gardens, Sligo*.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

ON Thursday, January 17th, the fifty-sixth annual general meeting of this gardening charity took place at Simpson's Hotel, 101, Strand, W.C. Mr. Harry J. Veitch presided over a fair attendance, and among those present we noticed Dr. Masters, F.R.S., Mr. J. H. Veitch, Mr. H. Williams, Mr. J. Laing and Mr. J. Laing, jun., Mr. R. Hogg, Mr. R. Dean, Mr. Watkins, Mr. Hudson, Mr. Wythes, Mr. H. Turner, Mr. Thomas Manning, Mr. Munro, Mr. A. F. Barron, and other influential gentlemen well known in horticultural circles.

After reading the minutes of the previous annual meeting, the

Secretary (Mr. G. J. Ingram) read the report and balance-sheet of the Institution for 1894. We append these in full.

COMMITTEE'S REPORT.

In submitting the fifty-sixth report of the Gardeners' Royal Benevolent Institution, the Committee have the satisfaction of again congratulating the members and subscribers on the continued prosperity of the work which has now been carried on with such signal success for the past fifty-six years, and has been the means of conferring year by year an increasing amount of benefit upon a most worthy class of



FIG. 14.—CLEOME HEPTAPHYLLA.

society who have been compelled to seek aid from the funds of the charity.

The Committee have much pleasure in stating that the annual festival dinner, held in June last, was most successful. They desire to acknowledge their great indebtedness to Sir Julian Goldsmid, Bart., M.P., who presided on that occasion, and whose able advocacy of the claims of the Institution and personal liberality conducted in a very large measure to the financial result which was attained. The Committee also desire to tender their hearty thanks to those gentlemen who acted as stewards, as well as to those friends who, either by gifts of flowers and fruit or in other ways, contributed to make the festival a success.

During the past year fifteen pensioners have passed away. The Committee have therefore decided to recommend an addition of fourteen pensioners to those now on the books, eight of whom they ask the subscribers to place on the funds without the trouble and expense of an election, they having fulfilled the conditions of Rule III., 5, the remaining six to be elected in the usual manner. It is with much regret that the Committee feel themselves unable to assist a larger number of candidates, the more so as the list of those seeking election is the largest on record in the history of the Institution. They deeply deplore the fact that there must be at least thirty-six unsuccessful applicants whose claims, urgent though they are, cannot be met. If "hope deferred

maketh the heart sick," then there must necessarily be a number of heart-sick ones who will be compelled to wait on before that aid which they so much need can be afforded. The Committee therefore very earnestly appeal for more support and increased effort on the part of their friends, and they would specially plead with those for whose benefit the Institution was founded to do all they can, not only to help the Institution themselves, but to urge its claims upon all those with whom they come into contact, and who are interested in horticultural pursuits.

The Committee believe that the Institution and its aims are becoming more widely known and better appreciated, and they have noted with much satisfaction that a keener interest appears to be taken in its work than heretofore, as indicated by the recent correspondence in the columns of the horticultural Press. They take this opportunity of thanking their well-wishers, and trust that all who have the well-being of the Institution at heart will redouble their exertions on its behalf.

With the full sanction of the Committee, and in order to increase the resources of the Institution, the Trustees decided to sell out the sum of £20,000, forming part of the invested funds of the Institution, and re-invest it in guaranteed securities bearing a higher rate of interest. They have, therefore, taken up the above amount in London and North-Western Railway Three per Cent. Debentures, Midland Railway Three per Cent. Debentures, Great Indian Peninsula Five per Cent. Guaranteed Stock, and Manchester Corporation Three per Cent. Stock. This will give an increased income from dividends of about £50 a year.

At the last annual meeting the Committee had the satisfaction of announcement that an auxiliary had been formed at Bristol for Bristol, Bath, and neighbourhood, with the view of making the objects and claims of the Institution better known. They now have much pleasure in stating that similar auxiliaries have been started at Birmingham, under the presidency of the Right Hon. the Earl of Dudley; and at Wolverhampton, under that of C. T. Mander, Esq. (Mayor). At both towns successful inaugural meetings have been held, which were addressed by the Treasurer of the Institution and the Secretary. Very heartily do the Committee thank those gentlemen to whose efforts the formation of these branches are due, and they cordially invite communications from friends in other parts of the country who are willing to help in establishing these local adjuncts to the Institution, which they believe will tend to promote its interests.

Like other charities, the Committee feel the effects of the commercial depression under which the country is passing, and the consequent cessation of many annual subscriptions which had been regularly remitted for many years. Then again, they have to deplore the loss of several warm friends and supporters by death, foremost among whom may be mentioned the late Earl Grey, who had been for a long period a contributor to the funds of the Institution. It is difficult to fill the places of these friends, but it is matter of much congratulation that a number of new annual subscribers have been obtained during the past year, which will in some degree compensate for the financial loss sustained.

The Committee have also to express their deep regret that, in consequence of advancing years, their revered and esteemed Chairman of Committee has been compelled to resign that important office. Mr. John Lee has fittingly been described as the father of the Institution. For upwards of fifty years he has taken the warmest interest in its welfare. He has been indefatigable in his exertions on its behalf, and he has had the satisfaction of witnessing its progress and prosperity year by year.

At a General Committee held December 21st last, the following resolution was unanimously adopted: "That the Committee sincerely regret the necessity for Mr. Lee's resignation, and they desire unanimously to place on record their grateful acknowledgement of the very great services rendered by him to the Institution during more than fifty years, but more especially during the long time he has acted as Chairman of the Committee, and they express the sincere hope that Mr. Lee may yet be spared many years to continue a member of the Committee and to give them the benefit of his mature judgment."

It was naturally a task of much difficulty to obtain a successor to Mr. Lee. The Committee, however, after much consideration decided to approach Sir Alexander Arbuthnot with a request that he would join their body and accept the position vacated by Mr. Lee. They now have the pleasure to announce that Sir Alexander Arbuthnot has very kindly consented to join the Committee and occupy the post of Chairman.

The Committee would add that the Gardeners' Royal Benevolent Institution is the only charity of its kind in the United Kingdom, and that, though its centre is in London, the benefits it dispenses are not limited merely to the area of the metropolis, but are extended to and embrace all parts—England, Scotland, Ireland, and Wales. They do not, therefore, put forward the claims of a charity the usefulness and importance of which have decreased, but for an institution which, after a period of fifty-six years' existence, is more than ever regarded as an inestimable boon by those assisted from its funds upon whom old age, sorrow, and misfortune have fallen.

The balance-sheet showed that the income during the year was, with the sum of £936 16s. 4d. balance from 1893, £4399 4s. 11d., the subscriptions amounting to £1302 19s. 4d., donations and proceeds of collecting cards to £1321 18s. 7d., and the dividends on investments and interest on deposits to £7921 1s. 2d. The payments included £2710 2s. 5d., distributed in pensions and gratuities; £686 2s. 8d. for general expenses; and £100 placed on deposit.

BALANCE SHEET, 1894.

Dr.	£ s. d.	£ s. d.	£ s. d.
To Balance			936 16 4
" Annual Subscriptions		1302 19 4	
" Donations	753 2 9		
" Ditto	379 19 5		
" Income Tax Refunded by Commissioners	2 14 5		
" Collecting Cards	186 2 0		
		1321 18 7	
" Advertisements in Annual List	44 19 6		
" Dividends on Investments and Interest on Deposits	792 11 2		
		837 10 8	
			3462 8 7
Invested Funds*—			
2½ per Cent. Consols	5000 0 0		
India 3 per Cent. Stock	2664 19 10		
Midland Railway 3 per Cent. Debenture Stock (Silver Wedding Thanks Offering Special Fund)	479 10 0		
Great Indian Peninsula Railway, 5 per Cent. (cost £5062 19s. 9d.) guaranteed	3000 0 0		
London and North-Western Railway 3 per Cent. Debenture Stock (cost £5363 8s. 6d.)	5000 0 0		
Midland Railway 3 per Cent. Debenture Stock (cost £5365 4s. 9d.)	5000 0 0		
Manchester Corporation 3 per Cent. Stock (cost £4133 6s.)	4054 12 9		
On deposit, £1400			
			£4399 4 11

* In the names of the Trustees.

OR.	£ s. d.	£ s. d.	£ s. d.
By Pensions and Gratuities			2710 2 5
" Secretary's Salary and Honorarium for Extra Services		220 0 0	
" Rent of Offices		62 10 0	
" Office Assistance		20 0 0	
" Expenses of Annual Meeting and Election		15 19 0	
" Collecting Boxes		27 18 0	
" Printing, including Annual Report and List of Subscribers		129 0 4	
" Stationery, &c.		21 0 0	
" Expenses of Annual Dinner	166 1 4		
Less Tickets Sold	73 10 0		
		92 11 4	
" Cost of Appeals		19 10 4	
" Expenses of Transfer of Stock		3 7 6	
" Postages, Deputation, Travelling, and incidental Expenses		74 6 2	
		683 2 8	
			£3396 5 1
Placed on Deposit with Bankers			100 0 0
Balance, viz. :—			
With Treasurer at Bankers		902 10 10	
" Secretary		0 9 0	
		902 19 10	
			£4399 4 11

We have audited the accounts for the past year, and are pleased to report that we found the books in perfect order, and well kept.

(Signed) { THOMAS MANNING.
J. WILLARD.
T. SWIFT.

The Chairman, who is also Treasurer of the Institution, briefly referred to the reinvestment of the funds, which would now bring in an increased dividend of £50, and stated the stock purchased by the Committee had risen considerably in value since the reinvestment. Mr. Veitch also referred to Mr. Lee's enforced absence through illness, and drew attention to the illuminated and handsomely framed address which the Institution intended to present to Mr. Lee as a small token of affection and respect for one who had for fifty years been Chairman of its Committee.

Dr. Masters moved that the report of the Committee and the balance sheet be adopted, and that the meeting give its best thanks to the Committee for their able management of the affairs of the Institution. Mr. Richard Dean having seconded the motion, the resolution was passed without dissent.

On the motion of Mr. B. Wynne, seconded by Mr. G. Wythes, Mr. H. J. Veitch was unanimously re-elected Treasurer, and the thanks of the meeting was tendered to him for the able manner in which he assisted the management and for the trouble he had taken to advance the interests of the Institution. It was then proposed by Mr. B. Wynne, "That Messrs. Cutbush, Williams, Watkins, and Sexby, who retire by rotation, be re-elected members of Committee for the next four years; and that Sir Alexander Arbuthnot and Mr. George Norman be elected members of Committee in the places of Messrs. Arnold Moss and George Woodgate." This was seconded by Mr. Osborn and passed.

Mr. H. J. Veitch then moved, and Mr. Munro seconded, "That Messrs. James S. Buck, W. Crane, R. Gold, H. Higgins, and R. A. Jack be reappointed Arbitrators for the ensuing year."

The proposal, "That Mr. George J. Ingram be re-elected Secretary," was carried unanimously, and Mr. Ingram thanked the meeting for his re-election.

Mr. Munro's proposal, "That, in accordance with Rule III., 5, and upon the recommendation of the Committee, who have investigated each case, the following eight candidates—viz., R. Vertegans of Birmingham, aged sixty-eight, nurseryman, annual subscriber of £1 ls. for twenty-five years, and a contributor of £7 7s.; J. Lemmon of Chichester, aged sixty-seven, gardener, annual subscriber of £1 ls. for eighteen years, and a contributor of £21; C. H. Fearenside of Boutham, aged sixty-eight, gardener, annual subscriber of £1 ls. for twenty-five years; Charles

Harris of Manchester, aged sixty-seven, gardener, life member for fifteen years; H. Parsons of Foot's Cray, aged sixty-five, gardener, annual subscriber of £1 ls. for eighteen years; M. Reed of Abbots Langley, aged sixty-nine, gardener, annual subscriber of £1 ls. for fifteen years; Susan Ridout of Reigate, aged sixty-one, widow of John Ridout, gardener, who was an annual subscriber of £1 ls. for twenty-two years, and a contributor of £63; and Eliza Burrell of Esher, aged seventy-eight, widow of Edward Burrell, a gardener, who was an annual subscriber of £1 ls. for twenty years, be placed on the list of pensioners without election from December 31st last," was unanimously adopted.

Messrs. B. Wynne, John A. Laing, George Munro, and James Webber were then elected Scrutineers, and it was agreed that all questions arising out of the voting be referred to them. The meeting was then adjourned until the polling, which closed at 4.30, could be declared.

RESULT OF THE POLL.

About a quarter past five the poll was declared. It was an exceedingly heavy one, and only those candidates who gained over 2000 votes were successful; the six names with an asterisk affixed will be duly placed upon the Institution's list of pensioners.

The following is a list of the candidates, with the number of votes gained; those with asterisks affixed were successful:—Clara E. Brown, 2188*; John Collier, 769; Henry Fielder, 2261*; Thomas Thomas, 2735*; Thomas Bundy, 711; James Clarren, 2824*; David Cornell, 356; Hester Falconer, 1608; Ambrose Minty, 364; John Percy, 1569; Robert Pettitt, 2024*; Eliza Webb, 1033; Thomas Bannister, 1765; Robert Begbie, 519; Thomas Cawley, 1463; William Croshier, 1200; Samuel Hicks, 109; Emma A. Ivery, 2500*; Joseph Monk, 513; Joseph Shearn, 1130; Charles Smith, 1213; J. Akehurst, 70; H. C. Allman, 10; George Ashby, 542; W. Bishop, 1139; S. Chinery, 1506; W. Dean, 864; F. W. Durrant, 1006; J. Field, 1142; George Fletcher, 1033; Eliza Gardner, 95; Elizabeth Hepburn, 514; Rachel Jefferson, 560; William Lee, 1022; James Lonsdale, 855; S. Pickstone, 1004; W. Rose, 369; Anne Smith, 23; John Thomas, 28; Caroline Wood, 492; Henry Wood, 1560; and W. Wood, 596.

Votes of thanks to the Chairman for presiding, and to the Scrutineers for their help, were, on the motion of Mr. Melady, unanimously tendered. The meeting then closed.

ANNUAL FRIENDLY SUPPER.

After the general meeting the members and friends of the Institution, to the number of about 130, gathered under the presidency of Mr. George Dickson of Chester, to a supper at Simpsons'. On former occasions this gathering has been known as "The Lark Pudding Dinner," and the dainty dish which gave rise to that title will doubtless figure in the *menu* on future occasions, as it did on this one. The Chairman was supported by Mr. H. J. Veitch and Mr. N. N. Sherwood. Other horticultural notabilities present were:—Messrs. H. Turner, H. Williams, J. Webber, P. Kay, P. Barr, G. Bunyard, J. H. Veitch, P. C. Veitch, A. Moss, Cutbush, Outram, Assbee, Watkins, J. Laing, and A. F. Barron.

The supper having concluded, and the usual loyal toasts honoured, Mr. George Dickson proposed, "Continued Prosperity to the Gardeners' Royal Benevolent Institution." The Institution, he said, was now doing more to alleviate the sufferings of distressed gardeners or their widows than it had previously done, while the reinvestment of the funds would bring in sufficient extra money to maintain two more pensioners. Mr. Dickson spoke highly of the auxiliary branches formed and forming, and hinted that if the Institution saw fit to open an auxiliary farther north than it yet had done, it would doubtless meet with approval and support. The Chairman regretted, as did the meeting, the enforced absence through ill health of Mr. J. Lee, who had for so many years been Chairman of Committee. The Chairman appealed to the friends to re-double their efforts for obtaining subscriptions, and so enable the Institution to extend its usefulness and bring relief to many more of those who were candidates for pensions. Mr. Dickson's speech was humorous yet forcible, and well received; the name of Mr. H. J. Veitch was coupled with the toast.

Mr. H. J. Veitch said he was pleased to respond, for as its Treasurer he could state the Institution was in a sound financial condition, and had a solid basis of well invested funds. Mr. Veitch referred to Mr. Lee's absence, and deeply lamented the recent decease of Mr. W. Thomson of Clovenfords, whose interest in the Institution had been unflinching during the past forty-seven years. When alluding to the auxiliaries, from which he expected much, Mr. Veitch took up the hint dropped by Mr. G. Dickson, and thanked him for what he considered was an invitation to Chester. There were three good reasons why gardeners should subscribe to the Institution; these, said Mr. Veitch, were self-interest, duty, and human sympathy, and no better arguments in its favour could be raised. In concluding his vigorous speech Mr. Veitch warmly thanked Mr. Dickson for coming to preside at a meeting so far from his home.

When proposing the health of officers and Committee Mr. P. C. Veitch said the Institution was well managed in every way, and its officers deserved the heartiest thanks. He could not understand why so few gardeners subscribed, and he hoped to see the day when almost all the gardeners in the kingdom would recognise in a practical manner the value of the Institution. Mr. George Wythes responded to this toast.

The health of the Chairman was given by Mr. N. N. Sherwood, who proposed that the heartiest thanks of the meeting be presented to Mr. Dickson for his presence at a gathering so far from his business, and for the ready help and support he had ever given to the Institution. Mr. George Dickson responded briefly, thanking the members for their good wishes and compliments. He concluded by proposing the health

of Mr. George J. Ingram, the Secretary of the Institution, than whom they could not find a man more suited to the position or better able to further the interests of the Institution. Mr. Ingram, who was greeted with applause, responded to the toast, and expressed his thanks for the good wishes tendered him.

During the evening toasts and speeches were interspersed with vocal and instrumental music, Mr. H. Turner giving several solos on the English concertina and Mr. Munro on the cornet. The meeting closed at a comparatively early hour.

MR. BLACKMORE'S CRITICS.

I WAS very pleased at seeing the remarks of "A. D.," pages 34 and 35, and hope that more light may be thrown on profitable fruit growing, which Mr. Blackmore has denounced as being a "fatal fad." Nothing, however, has been advanced to enable us to trace the cause of his failure; there must be something to account for it since so many persons succeed in the work. In the first place, no man can expect to succeed with a "muck rake in each hand."

Anyone who has read Mr. Blackmore's novels will agree at once that only a man thoroughly conversant with horticulture could write those beautiful descriptions so true to nature; and if Pomona has not presented Mr. Blackmore with golden fruit, she has been a healthy inspiration to his literature.

"A. D." is not quite correct with regard to his description of Teddington. I have known Teddington between thirty and forty years, and have no hesitation in saying that as good Pears have been grown there as at any place in England. I have been gardening in eight counties in England and Wales, and I never met with better soil for Pear culture than at Teddington; and the site of Mr. Blackmore's garden is perfect, in the eye of the sun, and part of the town shelters it from the worst winds. I never had the pleasure of being in Mr. Blackmore's garden, and I am speaking of the natural soil of Teddington a quarter of a mile to the north of it. There was 3 feet of good light loam on gravel.

Mr. Blackmore's failure is not in soil and situation. My opinion is that his first expenses for walls, trellises, buildings, and labour was one cause; he was too heavily handicapped at the start by his preparations on a very valuable site. And then I expect he has been a victim of the middleman. His fruit was well grown and good, but not well sold; but as he is a gardener and a gentleman I hope he will let us know the real cause of his failure to make fruit growing a pleasant and profitable undertaking, as it should be.—R. M., *Newbury*.

I DO not propose to prolong farther than needful this very undesirable controversy. A hasty rush into print *re* "Profitable Fruit Culture" has evoked unanticipated criticisms. These would never have arisen but for the literary position of the writer, thus giving to his utterances an unduly authoritative character. Had the complaints originally sent to the press come (as they did not come) from professional growers of fruit for market, they would have been entitled to the fullest consideration, but they would not have evoked one tithe the attention, simply because they would not have been surrounded by any literary halo. I have written absolutely in the interests of fruit culture, and as deeply biassed in favour of fruit culture as a national industry as is clearly a biassed friend of Mr. Blackmore's. Any reader can thus discern whose advocacy or criticism is most entitled to respect. What matters it whether the ground under Pear culture at Teddington be 700 acres, the experience remains of the same value; but if from out of the 10 acres he subtracted the ground occupied by houses, sheds, pleasure grounds, and paths, how much more than 7 acres under fruit actually remains? It is no argument to quote Mr. Blackmore's long position on the R.H.S. Fruit Committee. Did I not say that the Teddington fruit garden had been an experimental one, and, so far as Pears were concerned, calculated to give wide experience as to sorts, but it was impossible to expect with that market profits? Such knowledge, and the knowledge obtained by practical market culture and sale, are wide asunder. Desiring "H." to do the same, I append my name in full.—ALEX. DEAN.



HARDY FRUIT GARDEN.

Wall Trees.—If the pruning, cleansing, and regulating of Apples, Pears, Plums, and Cherries on walls have not yet been completed, the work ought to be pushed on at every favourable opportunity. After these hardier trees have been dealt with, Peaches, Nectarines, Apricots, and Figs claim attention.

Apples and Pears.—*Branch Pruning.*—If horizontally trained trees are allowed to retain too many branches the result is a crowded state of the trees in the summer. Young trees in the course of formation need special attention so as to avoid originating the pairs of branches too closely together. Apples, as a rule, require more room than

Pears, the individual leaves of some varieties of the former being large, and if the branches are thickly placed the consequence is that the foliage and the spurs will be unduly shaded. Leaves deprived of light never attain their full size nor assume the proper texture indicative of health and the elaboration of the sap. There is nothing eventually lost by well opening out a crowded tree. Removing every other branch is not too much in many cases, those retained not being less than a foot apart, 15 inches being more applicable to some. It is even better to have the branches thinly placed and fruitful at 16 or 18 inches apart than at 9 or 10 inches asunder and fruitless.

Spur Pruning.—When spurs are crowded as well as branches it will be necessary to reduce their number, though severe thinning of these following close on branch reduction is not always desirable, and it is better to proceed gradually. The upper tier of branches in neglected trees becomes the strongest, therefore the thinning of the spur clumps is imperative, and where they project conspicuously shortening them is essential. This is best done at once, so that the spurs on the branches below may receive the benefit of increased light. Foreright shoots, whether shortened in the summer or not, should be pruned back to the lowest bud above the point they originated from. If numerous some of the worst placed may be cut out entirely.

Cordons.—The various forms of this style of training are simply managed after the branches have been formed in the proper position. To cover the space provided the leader may extend without being shortened, the side shoots being pinched in the summer to five or six leaves, and shortened at the winter pruning to one bud. Old-established cordons may require the spurs thinning or cutting back to obviate unsightly projections as well as to induce the best fruiting spurs to form near the wall. Young cordons growing too vigorously may have their energy subdued by careful lifting and replanting, but with those longer established cutting away the strong roots that extend beyond 3 feet will suffice.

Plums and Cherries.—Plums and sweet Cherries are grown on walls in fan-shaped, horizontal, and cordon forms. Fan-training admits of a judicious combination of spurs and training in young wood for fruiting the second year. It also provides a ready means of refurnishing trees with a fresh supply of wood originating from the base, cutting the old worn out branches away. The distance between the branches of horizontally trained trees, and those of cordons too, should be not less than a foot. This is ample, and admits light and air in abundance. The young growth, which in the summer was shortened to 3 inches, may now be reduced to half that length, fruit buds forming freely on the part left. Very severe reductions of old wood ought not to be carried out at one time, as gumming is induced.

Cordon and horizontal trees are best trained to wires arranged closely to the wall. Fan-shaped trees are frequently nailed to the surface of the wall, using clean strong shreds and properly pointed nails according to the strength of the branches or shoots. The ordinary cast iron wall nail, having a flexible lead strip attached, will be found very useful for the smaller shoots. No shreds are needed where these are used, as they can easily be bent to enclose the shoot securely, and they give way to the swelling growth. Medicated shreds are neat and durable, and much superior to cloth shreds in damp positions.

Pruning Gooseberries.—The main object to keep in view in managing Gooseberry bushes is to maintain them as shapely as possible in outline, well furnished with healthy branches and young wood thinly disposed, and the trees standing separate from each other. Fruit is produced freely on young wood of the previous year as well as on spurs on the old branches. Some growers spur in all the branches, while others rely on the young wood to produce the crop of fruit. Very few bushes, if healthy and vigorous, can accommodate, without crowding, all the young wood; therefore, after forming a bush into shape and thinning out all the obviously crowded and ill-placed branches, shoots that cross and bend inwards, or reach closely to the ground, cut out the weakest spray. Retain the best of the annual wood evenly distributed over the bushes, shortening it but little.

Currants.—The annual growth on Red and White Currants should be spurred-in to an inch, the leading growths at the end of the branches also being pruned if no further extension is required, but where they have not yet attained the desired length leave the growths 6 or 8 inches long. Worn out branches may be replaced by strong growths from the base, shortening them to 9 or 10 inches. Black Currants must have abundance of young wood, either strong growths issuing from the base of the principal branches or sucker-like extensions from the roots.

Protecting Gooseberry and Currant Buds.—Fine lime sprinkled over the trees when wet is a deterrent to birds attacking the buds. It is also beneficial as a cleanser of the trees and the ground below them.

FRUIT FORCING.

Pines.—*Fruiting Plants.*—Afford a mean temperature of 70°, varying it 5° according to external conditions, admitting air at 80°, with sunshine, but do not lower the temperature, allowing the heat to rise to 85°, closing at 80°, with a prospect of a slight advance from sun heat. Syringe the paths and walls twice every day, but do not syringe the hot-water pipes, or the surface of the bed between the plants, as the dense steam arising from the first is quickly condensed by the leaves of the plants or glass, and has a tendency to unduly enlarge the crowns of the fruit, while the steaming from the bed is prolific of the fruits becoming black in the centre. This is also accelerated by too free supplies of water and liquid nourishment at the roots, the first needing

to be sparingly given and the latter discontinued when the fruit is swelled and gives the slightest indications of ripening. An occasional syringing, however, will greatly benefit plants swelling the fruit, providing it is done early in the afternoon of fine days, but only when the axils of the leaves become dry.

Plants for Successional Fruiting.—At the beginning of February an additional number of Queens should be started to supplement the supply of fruit from those which are already introduced to afford fruit in May and June. Beds having hot-water pipes beneath them can soon be prepared for the plants, but it is not the case where fermenting materials alone are employed for bottom heat, hence it will be necessary in the latter case to see that material is duly provided and had in the proper condition for furnishing a heat of 85° to 90° by the time it is required. When plants which have been kept somewhat drier are to be started see that the balls are made thoroughly moist, so that when they are placed in the extra warmth root action may commence at once.

Successional Plants.—Maintain a night temperature of 60° to 65°, and 5° less in severe weather, with 5° to 10° advance in the daytime according to external conditions. Keep the plants rather dry at the roots, but not excessively so, and when water is needed give it thoroughly at a temperature of about 80°, and always with a little stimulating food in it, such as guano or liquid from manure tanks. Suckers should have a temperature of 55° to 60° at night, and 60° to 65° by day from fire heat, with 5° to 10° more from sun heat.

Melons.—As the seedlings grow add a little warmed soil as top-dressing to those in single pots, while those several in a pot should be potted off singly in moist and warmed soil, which is necessary at this early season, so that water may not be required at the time of potting, placing the plants near the glass and keeping a sharp look out for slugs, crickets, cockroaches, woodlice, and even springtails, where fermenting materials are used. Brewers' grains or moist bran are excellent traps for slugs; hollowed Mangold Wurtzel for woodlice, phosphor paste being the best remedy for crickets and cockroaches, and for springtails a little boiled Potato placed at the edges of the bed, where they can be treated with boiling water. Soil should be placed under cover, so as to become dried preparatory to forming into ridges or hillocks in the Melon house. Good loam, rather strong than light, is suitable for Melons, and if it has been laid up in ridges so as to reduce the turf, it will be in a fit state for the purpose. If deficient in grit add a fifth of road scrapings, and if not calcareous a sixth of old mortar rubbish. If there is need of manure nothing answers so well as horse droppings. The compost in that case would consist of three parts loam, and one part each of horse droppings, road scrapings, and lime rubbish. This well mixed and made firm in the ridges or hillocks will grow Melons to perfection, other conditions being favourable. The only possible deficiency will be in mineral matter, such as phosphoric acid, potash, and soda, which can be supplied by an addition of wood ashes, using a peck to a good barrowload of soil. For frame culture seeds should be sown early in next month. This is quite early enough to begin when reliance for artificial heat has to be placed on fermenting material, as Melons do best when growth is maintained and there is ample of light and sun to perfect the fruit. The fruit of plants from this sowing will be ripe early in June, or at the close of May in the south. The bed for raising the seedlings should be made forthwith, unless one be made for Cucumbers, which will answer for raising Melon plants.

Cucumbers.—*Raising Plants in Frames.*—The beginning of February is a good time for raising plants from seeds to produce fruit fit to eat at Easter or the second or third week in April. The greatest mistake is made by commencing too early. The materials for making up the bed for raising the seedlings being in a fit state for turning over and mixing, so as to induce a sweet regular heat, a site for a bed should be chosen having a full southern exposure, with shelter to the north, as that of a wall or hedge, and if the ground be rather higher than the surrounding level all the better. In forming the bed, which should be about 6 inches larger than the frame all round, the sweetened manure and leaves, in the proportion of one of the former to two of the latter, must be beaten well down with the fork as the work proceeds, making the bed about 5 feet high at the back, and 4 feet 6 inches in front, which will allow for settling, as it will do, about one-third. A few Pea sticks placed across and along the bed at intervals not only prevent overheating, but admits the heat from linings to be conveyed to the interior of the bed. For early work frames with double sides are preferable, three-eighths-inch boards 9 inches less in depth than the box at the back, and 6 inches in front, with the boards at the ends sloping, and all the boards secured to the inside by nailing strips of wood an inch wide and thick vertically to the box, then the boards which form a cavity an inch wide all round the lower part of the inside of the box, which is essential to get ample heat from the linings. In about a week from making the bed the heat will be up, then level the surface, or rather make it evenly sloping to the front, replace the box, apply sufficient sweetened material to raise the inside within 2 or 3 inches of the top of the inner frame or cavity, placing rather dry, partially decayed leaves or spent tan for plunging the pots in. This bed will afford a mild and regular bottom heat, and the top heat will more accord with it than is the case without the cavity. Such a bed is valuable for raising many other plants from seeds and cuttings besides seedling Melons and Cucumbers. To raise the plants, half fill 3-inch pots with rich light loam, placing one seed in the centre of each pot, covering with fine soil in a moist state, so that watering will not be required to insure the germination of the seeds. Space is thus left in the pot for top-dressing,

which is preferable to potting the plants. Cover the pots with a pane of glass, which hastens germination, but remove it as soon as the plants appear. The plants, whether Cucumbers or Melons, from a sowing made early in February will be ready to plant out early in March.

Cucumbers in Houses.—Secure a night temperature of 65°, 5° more in mild weather, whilst it may fall to 60° on very cold nights, 70° to 75° by day from fire heat, and 80° to 85° or 90° with sun heat. When the external air is mild a little ventilation may be given at 80°, closing before the temperature is reduced below that degree, and so as to raise it to 90° to 95° or 100° in the early part of the afternoon. If, on the other hand, the external air is cold, although the sun shines, it is better to allow the temperature to advance a little beyond the limits named than to admit air, which cripples the foliage and causes the fruit to become stunted. Plants in bearing will require to be attended to about twice a week for the removal of all weakly and exhausted growths, reserving sufficient young bearing wood for filling the allotted space without crowding, stopping the shoots at one or two joints beyond the fruit. Young plants coming into bearing should not be allowed to bear too soon, and by no means be overcropped. They are greatly assisted by removing tendrils and superfluous flowers as they appear. Let the root moisture be governed by the condition of the soil and requirements of the plants. Avoid overwatering, as it is moisture in an aerified state that is needed for healthy growth, a sodden soil producing nothing but evil. When vigour is needed supply liquid manure in a tepid state, top-dressing with a little fresh loam and an approved fertiliser to accelerate surface rooting and an abundance of active feeders. Except on fine days syringing should not be practised over the foliage, a light sprinkling on bright afternoons being beneficial. Damping the floor and similar surfaces in the morning, afternoon, and evening—about 8 A.M., 2 and 5 P.M.—will give all the moisture necessary in ordinary weather. Keep a sharp look out for aphides, and fumigate moderately and carefully on two consecutive evenings, or preferably late at night and in the early morning. If mildew appears apply flowers of sulphur promptly, brushing a little on the hot-water pipes in case of attack from white fly or red spider, and rub quicklime well into any parts affected with canker.

THE FLOWER GARDEN.

Hotbeds for Propagating Purposes.—Propagating cases over hot-water pipes have largely superseded the old-fashioned hotbeds for propagating purposes, but it is doubtful if the results are generally so satisfactory. The moist, genial heat of a hotbed of well prepared manure and leaves is yet unsurpassed for raising plants from seeds or cuttings in glass-covered boxes. When the bottom heat is in the form of a tank set on hot-water pipes a moist heat is generated, while if the pipes pass through a brick and cement tank still more vapour arises. In each and every case the glass should be wiped dry every morning, the drip from this, if allowed to take place, proving fatal to either cuttings or seedlings.

Tuberous-rooted Begonias.—It is a mistake to start old tubers very early if cuttings are wanted for raising plants for bedding out. Keep them dry and cool. There should be no delay, however, in sowing seed of the best bedding strains. They can be had in separate colours as well as in mixtures. The seed is very minute, and more than ordinary pains have to be taken with it in order to be sure of germination. Six-inch pots or pans should be well drained and filled with fine sandy loam rather than peat or leaf soil, in which insects abound; make it firm, and level, giving a gentle watering a short time prior to sowing the seed. On no account surface over the soil with silver sand, as this does not afford the necessary foothold for the tiny seedlings. Sow the seed evenly, and do not cover with either soil or sand. Plunge the pots in a gentle bottom heat, cover with squares of glass, and darken with a covering of moss. The moist heat will obviate the necessity for frequent waterings; in fact, there ought to be no sprinklings after sowing, as these are almost certain to disturb the seed. At the same time the soil must not be allowed to become dry, and when approaching dryness the pans or pots should be partially immersed in a bucket or tank of warm water, the moisture soaking upwards. Worms ought to be kept out of the soil. When the seeds are bursting is a very critical time, a few minutes' exposure to bright sunshine or dry heat spoiling them. The removal of the shading ought, therefore, to be gradual, and some of it to be returned on bright mornings. By good culture seedlings raised now or early in February should be large enough for the flower beds early in June.

Fibrous-rooted Begonias.—The white and pink flowering forms of *B. semperflorens* are suitable for bedding, but the crimson variety is even more so; the bronzed foliage is also effective. These all come true from seed, and are more easily raised than the tuberous-rooted section. *B. Carrieri*, a neat-growing, very floriferous white variety, is well adapted for bedding, raising the stock from cuttings made from young shoots, and the same may be said of the old *B. weltoniensis*, both the foliage and flowers finding many admirers.

Bedding Lobelias.—The dwarf kinds, notably well-selected strains of *L. speciosa*, are still indispensable as edging plants, and should be raised by hundreds or thousands, according to circumstances. They may be depended on to come true from seed, and this should be sown at once, very much as advised in the case of tuberous Begonias. Avoid sowing very thickly, as when crowded the seedlings are liable to damp off. Where the seed was sown in the autumn, and many thousands of plants are raised thus early, the seedlings ought soon to be pricked out other boxes being filled with them later on. Stock plants of named in pans or boxes of fine soil, especially should there be any signs

of damping. They may be pricked out rather thickly, frames or varieties that are to be propagated from by either cuttings or division ought never to be exposed to much dry heat, as this dries up the young roots that form above the soil, spoiling the plants for division, also hardening the young growths, rendering them unfit for making into cuttings, as it causes them to flower early. Every little piece with a few roots attached will, if dibbled in boxes or pans of good soil and placed in a moderately brisk heat, soon become established, and by bedding out time have developed into good stocky plants. Quite soft tops will root freely in propagating or other frames over a fairly brisk bottom heat. *Lobelias cardinalis* and *Victoria* are perennials, and tall growing. These also may be raised from seed sown now, but they are best raised in June or July. Store plants, whether in pots or lifted from the beds, ought not to be subjected to much fire heat. Kept in a greenhouse or a pit they will duly push up numerous suckers, and it is then when division should take place.

Verbenas.—Seedlings are stronger growing than cutting-raised plants, and as a rule are only suitable for planting in beds by themselves, a packet of seed giving many excellent varieties. Sow at once in sandy loam in heat. Occasionally the seed germinates quickly, while at other times it is slow in moving, and the pots or pans ought not, therefore, to be hastily emptied under the impression that the seed has failed. Verbenas are among the first to suffer from too much fire heat. In by-gone days they were kept in better condition, and gave great numbers of succulent clean cuttings when wintered in pits and frames than has been the case since the store plants have been kept in heated houses through the winter. If good stocks of the long fleshy roots of *V. venosa* have been stored these may be cut into short lengths of two joints and dibbled thickly in boxes of light soil. The greater portion of these will form serviceable plants in due time.

Hollyhocks.—If old clumps have been kept through the winter, these if started in gentle heat will soon push up numbers of shoots, all of which could be taken off with a heel when about 4 inches long and rooted in heat. Where, however, disease ruins the old plants or any raised from cuttings, seedlings should be tried. If the seed is sown now in pans and placed in heat it will quickly germinate, and the seedlings being first pricked out in pans and boxes, then placed singly in 3-inch pots, and from these finally shifted into 6-inch, using a rich loamy compost, fine healthy plants will be ready for the borders by the middle of May. All may not throw up flower spikes the same summer, but the greater portion will do so, and some good varieties be had among them.

THE BEE-KEEPER.

APIARIAN NOTES.

CONSUMPTION OF STORES.

MANY inquiries have reached me concerning the safety of hives. Some point to a few dead bees on the alighting boards; others to bees flying and losing themselves in the snow; and in one instance the entrance is choked with dead bees.

Since Christmas my bees have never been observed on the wing. Although I have been outside very little I have had reliable information conveyed to me as to external appearances, and can see from the window the fronts of a few of my hives. Most of them have from one to a dozen dead bees on their alighting board. I regard these as a sure proof that the bees within are alive and healthy, due to internal dryness, which gives comfort and health to the bees.

The absence of dead bees on the floors or closing the entrances is entirely due to the ventilating metal floor being free from damp, unlike the solid floors, which are often damp and fatal to bees when they come into contact with them during cold weather. Hives so constructed have generally much moisture on the sides, and combs soon become mouldy. The temperature of a damp hive being much lower than a dry one the bees consume more food, consequently become restless and fly in an enfeebled condition when they ought to be resting in comfort within their hives. All my hives, except one that was diseased in the autumn, have ample stores to tide them over till honey can be gathered. The weak hive began to breed and feed a week before Christmas, and I am hoping to bring it through by close attention. Still, although I left my hives extra heavy, and some with their surplus untouched, they consumed more honey in the mild November and December than they would had the temperature in these months been lower.

Other bee-keepers have done the same, and those hives having under 15 lbs. of food at the start may be on the verge of starvation. In all cases where a shortness of stores is suspected, feed liberally the first night after the bees have had a flight. If weak, nurse rather than feed, and keep the crown of the hive over the bees well covered with porous material, and give them no inducement to fly until the flowers invite them forth.

REPAIRS AND IMPROVEMENTS.

Note every defect, and make arrangements to have them remedied before another winter, as well as to have any improvement

desirable which tends to economy, and having healthy and profitable hives. I especially advise those who have hives smaller than Nature demands to try larger ones, and see if the change is not a good one. If any difficulty arises an appeal to these columns will set them right, or advice will be given that will tend to clear the way to pursue their hobby with pleasure and profit.—A LANARKSHIRE BEE-KEEPER.

NOTES ON BEES.

A READER of the Journal writes, "What am I to do with one of my hives? It is a strong stock, and the queen will be three years old next June. I did not have more than 6 lbs. of honey from it last summer. It has eleven frames, and I am not certain if I ought to reduce the number, as I think the bees will go on storing in the frames instead of in the supers."

The colony should be headed by a young fertile queen, as only in exceptional cases is the queen of much use when in her fourth year. In my apiary I have several queens the same age as the above, but as they have been very prolific I delayed requeening those stocks until next summer. In the case of old queens they often do not make much headway early in the year, consequently it is late in the summer before the hive is full of bees, and, as stated above, very little honey will be stored. Queens of this age, too, will often die during a severe winter. If the stock is well provided with stores leave the whole of the frames in the hive until May, and if the weather has been favourable they will by this time be crowded with bees.

The proper time to rear queens is at their natural swarming season, and this should be done and the young queen laying before the old one is destroyed. It will take upwards of three weeks from the laying of the eggs till the queen is hatched and laying; and if during that time the old queen can be kept laying, at a very low estimate it will result in at least 20,000 young bees (a young fertile queen will at that time of the year lay at least 3000 eggs daily). These, if an increase of stocks is not required, will make an extra strong colony, which will reap the full benefit of the honey flow from the white Clover, if in a Clover district, or later in the season from the Heather.

On the morning of a fine day, when the bees are well on the wing, take two or three frames of well advanced brood, with all the adhering bees and the queen from the original hive, and place them in a new hive, adding two or three frames of fully drawn out combs or full sheets of foundation, closing with a division board, placing the hive on the original stand. The parent hive to be moved a few yards away, all the bees that are on the wing will return to their original stand, also many of the old bees from the parent stock, which will enable the new made colony to make progress. The frames in the parent stock should be closed up with the division board. Queen cells will at once be started.

If only one queen is required, these may all be cut out but one, delaying the operation until the tenth day. The best cell can then be selected. It is always advisable to rear an extra queen or two in case of loss. The queen will hatch out in about sixteen days, and, if the weather be favourable, should be fertilised and laying in six or eight days. In the meantime the brood will have been rapidly hatching out. All the empty cells in the new stock will soon be filled with brood, a frame of which should be taken out every few days and given to the queenless stock, and an empty frame should be put in its place. This will keep the nurse bees fully employed.

The hives should be moved a yard nearer each other every day until they are close together. As soon as the young queen is laying kill the old one, and put all the bees and frames of brood into one hive. If there is any danger of fighting sprinkle them with a little flour or thin syrup; but at that time of the year when honey is coming in freely the operation may take place without the loss of a single bee, and will result in an extra strong colony, and, being headed by a young fertile queen, will at once store a surplus in the supers.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

- Cunningham & Wylie, West Nile Street, Glasgow.—*Seed List*.
 Fisher, Son, & Sibray, Handsworth Nurseries, near Sheffield.—*Seed List*.
 H. J. Jones, Ryecroft Nursery, Hither Green, Lewisham.—*Chrysanthemum Guide*.
 Louis Paillet, Vallée de Chatenay, near Paris.—*Special Trade List*.
 G. Phippen, Reading.—*Catalogue of Vegetable and Flower Seeds*.
 A. Robinson, Brentwood.—*Catalogue of Garden Seeds*.
 Anthony Roozen & Son, Overveen, near Haarlem, Holland.—*Spring Catalogue*.
 Robert Sydenham, Tenby Street, Birmingham.—*Catalogue of Vegetable and Flower Seeds*.
 Vilmorin, Andrieux & Co., 4, Quai de la Mégisserie, Paris.—*General Spring Seed Catalogue*.



* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Barked Fruit Trees (K. J. F.).—We do not know what more can be done in addition to making smooth the torn edges of the bark and plastering, except carefully planting two seedling Crab or Apple stocks close to each tree, inarching these to the trees by slicing from the ground upwards to a length of 6 inches of the stem above the gnarled parts. In this way young fruit trees have been restored which would otherwise have been destroyed in consequence of the stems being deeply eaten all round by rabbits. The sliced portions of the stems must be absolutely clean for their union to be effected. When secured they must be clayed in the usual manner adopted in grafting, and no fissures allowed in the pigment to admit the air. Thin coverings which quickly become dry are of little use.

Chimonanthus fragrans in Pots (C. H. C.).—To flower the *Chimonanthus* successfully in a pot, it requires a very large one, good loam, with a little peat, plenty of water in summer, and a warm sunny place in the autumn, and the water to be reduced then to harden the wood. It requires much the same culture as a spurred Currant tree would do, only that the young stubby shoots are what must be looked after and prepared for winter. If the shoots produced are of the size of from a crowquill to a goosequill they will be quite strong enough, and if these side shoots grow longer than from 8 to 10 inches nip out the points. If the shoots are too thick to obtain light enough thin them out. Give all the heat possible out of doors in autumn, and as much dryness as the plants will stand, to ripen the shoots. As the soil becomes damp and the weather is mild the buds will expand.

Cockchafer Grub (D. M. R.).—The larva you send is not the caterpillar of the Goat Moth, which lives and feeds in the internal parts of trees; but the grub of the cockchafer (*Melolontha vulgaris*), that feeds on the roots of various shrubs and trees for about three years, when it becomes pupa, from which it emerges in the spring in perfect form—the familiar May bug or cockchafer. The larva is very destructive of tender roots and partial to vegetable matter, such as that of the decayed parts of manure and the roots of grasses, and the perfect insects feed on a great variety of trees, sometimes wholly denuding Hawthorn, Hazel, Elm, and Willow of foliage. It also attacks Oaks, and a great variety of other trees and shrubs. The grubs are stupefied, if not destroyed, by a dressing of nitrate of soda, 1½ lb. being used per rod, it being best applied after the ground has been dug level, so that the nitrate gets washed into the soil evenly. It is best applied in the late winter or early spring, alike for acting on the grubs and benefiting the land as manure. Soot, at the rate of 1 peck per rod, is also distasteful to the grubs and benefits the plants.

Cordon Pears under Glass (A. B.).—Pear trees succeed admirably as cordons in cool houses, but the fruit does not acquire so high a flavour, nor is so juicy, melting, or buttery as that perfected in the open air. Both early, midseason, or autumn and late Pears are eligible for this mode of culture, the fruit attaining large size under good management and feeding, and it generally carries plenty of colour, being very beautiful in appearance. The trees should be on the Quince, or if requisite double grafted. The following are excellent varieties:—Summer (July-September)—Beacon, Jargonelle, Souvenir du Congrès, Williams' Bon Chrétien, Triomphe de Vienne, Madame Treyve, and Fondante d'Automne. Autumn (October and November)—Louise Bonne of Jersey, Durondeau, Marie Louise, Madame André Leroy, Pitmaston Duchess, Beurré Superfin, Emile d'Heyst, Doyenné du Comice, and Comte de Lamy. Winter (December onwards)—Beurré Diel, Beurré Baltet Père, Maréchal de Cour, Beurré d'Anjou, Winter Nelis, Knight's Monarch, Beurré de Jonghe, Duchesse de Bordeaux, Nouvelle Fulvie, Josephine de Malines, Marie Benoist, Beurré Rance, Easter Beurré, Bergamot Esperen, and Doyenné d'Alençon. Cherries thrive excellently under glass as cordons. Some of the best for a succession of fruit are Belle d'Orleans, Banmann's May, Purple Guigne, Early Rivers, Governor Wood, May Duke, Belle de Choisy, Waterloo, Elton, Bigarreau de Mezel, Black Eagle, Black Tartarian, Emperor Francis, and Florence. Both the Pears and Cherries may be grown in pots, the Pears being placed in the house when the buds commence swelling in the spring and kept under glass till the fruit is set and the

weather has become settled, or in June, placing them outdoors, the Cherries being placed in the house in spring and continued therein until the fruit is gathered, then the trees may be taken outside. This is better practice in the south of England than keeping the plants constantly under glass.

Pruning an Apple Tree (M. G. T.).—Do not wait till next year before pruning the growths from the scions, as obviously that would necessitate cutting back into two-year-old wood. Shorten them now, but if the production of fruit is of greater consideration to you than the form and outline of the tree, perhaps the less they are shortened the better. If you particularly want a formal pyramid, pruning must be resorted to for producing it, but the closer you prune the more you will retard the bearing of the tree. Apple trees do not make good and productive pyramids, their natural habit of growth differing from Pears. If early fruitfulness is your chief object you had better limit the pruning to the removal of any soft unripe tips from the shoots.

Dressing Vines with Lime and Sulphur (Nemo).—An excellent insecticide and fungicide of proved efficacy is given herewith, and will doubtless be what you are in need of. Take 7 lbs. of flowers of sulphur and 7 lbs. of quicklime, boil together for fifteen minutes in 3 gallons of water, then add 2 lbs. of softsoap and 1 lb. of strongest shag tobacco, boiling all together for half an hour, adding 9 gallons of water, keeping it well stirred. Allow it to cool, then strain, and when settled take off the clear liquid, place in earthenware bottles, keeping them closely corked. In its pure state it may be used for dressing Vines and other fruit trees when at rest, applying it with a brush, taking care not to injure or dislocate the buds. For syringing Peach and other fruit trees during growth 1 pint to 3 gallons of water is a suitable quantity, and efficacious against insects and mildew. It must not be applied over Vines in growth, as it is apt to leave a deposit on the berries similar to stain marks occasioned by using hard or lime water. If used over Cucumbers or Melons, as well as plants with hairy leaves, half a pint is a full quantity to add to 3 gallons of water.

Decomposed Seaweed (Seaside).—The constituents vary according to the different plants or Seaweeds. *Fucus digitatus* contains 20.66 per cent. of potash, 7.65 soda, 6.86 magnesia, 10.94 lime, 2.36 phosphoric acid, 12.33 sulphuric acid, 1.44 silica, 0.57 peroxide of iron, and 26.18 chloride of sodium. *Fucus serratus* contains 3.98 per cent. potash, 18.67 soda, 10.29 magnesia, 14.41 lime, 3.89 phosphoric acid, 18.59 sulphuric acid, 0.38 silica, 0.30 peroxide of iron, 16.56 chloride of sodium. In the green state Seaweeds supply chiefly nitrogen and potash to a soil, decomposing rapidly, and are excellent manure, but a quantity is needed—viz., 20 to 30 tons per acre. They should be used as a potash-nitrogenous manure. Reduced to mould their value is similar in furthering plant growth to leaf soil, differing only in the enlarged amounts of potash and soda, and may be used in the same way. Dried and burnt the constituents would be as given above, but the value of the soil would be gone, the mineral only remaining, and chiefly valuable for its potash, soda, and phosphoric acid. In the mould state the organic matter would contribute considerably to plant growth, mainly from the humus, though the carbonic and nitrogenous elements would act beneficially. It may be used for the plants you name to the extent of one-third of loam, or if the loam be turfy a fourth would be sufficient, as its action would be directed to increase foliage, and in plenty of light to improve the colour of foliage and flowers.

Tomato and Cucumber Fertilisers (Cross).—The compound advised for Tomatoes on December 27th, 1894, should be used every fortnight or three weeks, or, if that is likely to impart too much vigour, at more distant intervals, say four or six weeks. Instead of the hoof and horn dust we should use nitrate of soda, which is a better form of nitrogen than that generated or evolved from animal matter, and is inimical to, while the other favours eelworm. The thing is to avoid clubbing altogether, upon which our advice was founded. Chlorophyll is stated to be mainly due to the presence of iron, but that is mere conjecture in many cases, as ammonia or nitric acid puts more green into plants than any other element. Iron is, however, absolutely essential to the formation of chlorophyll, but its activity, or the power of assimilation, depends on the extent of its nitrogenisation. The superphosphate advised is that of dissolved bones, not fermented, but treated with sulphuric acid. Mineral superphosphate is safer to use, as regards eelworm, than fermented bone compound, which often favours visible larvae as well as micro-organisms. For the Cucumbers you may add a half part of sulphate of iron to the mixture, and apply as before advised. A slight sprinkling of soot would give you both the iron and ammonia, so essential for colour in the foliage and fruit of Cucumbers, using it alternately with the mixture recommended without the sulphate of iron, for the soil can hardly be deficient of iron; or it may be secured by using some of the gravelly subsoil with the compost as opening material.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*T. R. S.*)—*Euonymus radicans variegata*. (*Erica*).—1, *Trichomanes reniforme*; 2, *T. radicans*; 3, *T. tricoideum*. (*S. M. R.*)—1, *Gleichenia flabellata*; 2, *Hermitelia horrida*; 3, *Dictyogramma japonica*; 4, *Gleichenia Speluncæ*. (*Orchidist*).—1, *Cypripedium Harrisianum*; 2, *C. villosum*; 3, *Lælia anceps*, very fine form. (*L. E. C.*)—1, *Cattleya Percivalliana*; 2, *Lælia anceps*.

COVENT GARDEN MARKET.—JANUARY 23RD.

MARKET practically at a standstill for home produce. Supplies reaching us principally from the Colonies. Grapes firmer, many growers being nearly finished.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per half sieve ..	1	6 to 4	6	Lemons, case ..	10 0 to 15 0
" Nova Scotia, per barrel ..	10	0	21 0	Peaches, per doz. ..	0 0 0 0
Grapes, per lb. ..	1	0	2 0	Plums, half sieve ..	0 0 0 0
Cobs, per 100 lbs. ..	20	0	21 0	St. Michael Pines, each ..	2 0 6 0
				Strawberries per lb. ..	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Beans, Kidney, per lb. ..	0	10 to 1	0	Mustard and Oress, punnet	0 2 to 0 0
Beet, Red, dozen ..	1	0	0 0	Onions, bushel ..	3 6 4 0
Carrots, bunch ..	0	3	0 4	Parsley, dozen bunches ..	2 0 3 0
Cauliflowers, dozen ..	1	6	3 0	Parsnips, dozen ..	1 0 0 6
Celery, bundle ..	1	0	1 3	Potatoes, per cwt. ..	2 0 4 0
Coleworts, dozen bunches ..	2	0	4 0	Salsify, bundle ..	1 0 1 5
Cucumbers, dozen ..	2	0	8 0	Seakale, per basket ..	1 3 1 9
Endive, dozen ..	1	3	1 6	Scorzoneria, bundle ..	1 6 0 0
Herbs, bunch ..	0	3	0 0	Shallots, per lb. ..	0 3 0 0
Leeks, bunch ..	0	2	0 0	Spinach, bushel ..	1 6 3 0
Lettuce, dozen ..	0	9	1 0	Tomatoes, per lb. ..	0 2 0 6
Mushrooms, punnet ..	0	9	1 0	Turnips, bunch ..	0 3 0 4

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s. d.	s. d.		s. d.	s. d.
Arum Lilies, 12 blooms ..	6	0 to 8	0	Pyrethrum, dozen bunches	2 0 to 4 0
Azalea, dozen sprays ..	0	6	1 0	Roses (indoor), dozen ..	0 6 1 0
Asparagus Fern, per bunch	2	0	3 0	" Tea, white, dozen ..	0 6 2 0
Bouvardias, bunch ..	0	6	1 0	" Yellow, dozen ..	2 0 3 0
Carnations, 12 blooms ..	1	6	3 0	" Safrano (English), doz.	1 3 2 0
Chrysanthemums, doz. bchs.	4	0	12 0	" Maréchal Niel, doz. ..	3 0 6 0
" doz. blooms ..	1	0	4 0	" (French), yellow, doz.	1 6 2 0
Eucharis, dozen ..	4	0	6 0	" blooms ..	1 6 2 0
Gardenias, per dozen ..	2	0	4 0	" (French), Red, dozen	2 0 2 6
Geranium, scarlet, doz.	6	0	12 0	" blooms ..	4 0 6 0
Lilac (French) per bunch	5	0	6 0	Stephanotis, dozen sprays	4 0 6 0
Lilium longiflorum, per	6	0	9 0	Tuberose, 12 blooms ..	0 4 0 6
dozen ..	1	6	3 0	Violets (English), dozen	1 6 2 6
Marguerites, 12 bunches ..	4	0	6 0	Violets (French), Parme,	5 0 6 0
Maidenhair Fern, dozen	1	6	12 0	" per bunch ..	2 0 4 0
bunches ..	0	6	1 0	Violets (French), Czar, per	2 0 4 0
Orchids, per dozen blooms	6	0	9 0	" bunch ..	2 0 4 0
Pelargoniums, 12 bunches	0	6	1 0	Violets (French), Victoria,	2 0 4 0
Primula (double), dozen	4	0	6 0	dozen bunches ..	2 0 4 0
sprays ..	0	6	1 0		
Poinsettia, dozen blooms ..	4	0	6 0		

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (golden) dozen	6	0 to 12	0	Ferns, in variety, dozen ..	4 0 to 18 0
Aspidistra, per dozen ..	18	0	36 0	(small) per hundred	4 0 6 0
Aspidistra, specimen ant	5	0	10 6	Ficus elastica, each ..	1 0 7 0
Chrysanthemums, per doz.	4	0	8 0	Foliage plants, var., each	2 0 10 0
" large, per doz. ..	9	0	18 0	Lycopodiums, per dozen ..	3 0 4 0
Cyclamen, per dozen ..	9	0	12 0	Marguerite Daisy, dozen ..	6 0 12 0
Dracæna, various, dozen ..	12	0	30 0	Myrtles, dozen ..	6 0 9 0
Dracæna viridis, dozen ..	9	0	18 0	Palms, in var. each ..	1 0 15 0
Erica, various, per dozen ..	9	0	18 0	" (specimens) ..	21 0 63 0
Euonymus, var., dozen ..	6	0	18 0	Poinsettia, per dozen ..	10 0 15 0
Evergreens, in var., per	6	0	24 0	Primulas, per dozen ..	4 0 6 0
dozen ..	6	0	24 0	Solanums, per dozen ..	10 0 12 0



THE DAIRY IN WINTER.

A DRY building and an even temperature of 55° are now regarded by dairy experts as fundamentals on which successful butter-making depends in a high degree. The dry building is much more common than the even temperature. A thatched roof, north aspect, and good ventilation answer perfectly in the summer; but during the winter the proper temperature can only be maintained by means of a furnace and flue, or a couple of hot-water pipes running round the dairy. In good modern dairies attention is given to this, as well as to convenience for ripening cream—a matter of the first importance, because when well done the churning is more certain and more expeditious; the butter is of superior flavour and better texture, and there is at least 7 per cent more of it. If, as a prelude to skilful ripening, a separator is used we obtain a maximum result in quantity, as it is claimed for the separator that with it milk yields from 15 to 20 per cent. more butter than when it is set in pans.

A little consideration should bring conviction to the mind of every sensible dairy manager that the separator does much more than this. That it does extract more cream from the milk than is possible by using milk pans is certain; but in addition to this, if the milk is separated immediately after the milking the

risk of taint from exposure in pans is avoided, the trouble, expense, and anxiety of heating a large dairy in winter is avoided, and the cream, being in close compass can readily be prepared for churning.

Close attention to temperature is always important; it is even more so in winter than in summer. The cream should be kept in a room where there is a steady temperature of 55°; it can then be ripened readily for churning. By ripening the cream a slight thickening and sourness in it is meant. This comes naturally under a temperature of 55°, and with the whole of the cream slightly sour the greatest possible quantity of butter will be made. If the cream become too sour there will be less butter; it will not keep well, it will be of bad flavour, it may even be rancid, it will be practically worthless. Evenness of ripening is essential. Without it there will be some loss, simply because the butter grains come first from the sour cream, and those in the sweet or unripened cream will be lost in the buttermilk. That is why cream is stirred in the cream crock five or six times a day, and also when fresh cream is poured in. No fresh cream should be mixed with it for ten or twelve hours before the churning. When there is a large quantity of cream to deal with churning is more frequent, and recourse is had to artificial ripening. This is done by raising the temperature of the cream to 70°, adding and well stirring in 4 per cent. of sour milk or buttermilk, and keeping it covered and warm. It is then ready for churning in about eighteen hours; in some dairy schools four or five hours longer is allowed.

In the churning temperature is again an important factor. The best temperature of the cream for churning in winter is 58°; if it is at about 60° just before it is put in the churn it will be at the right temperature when churning begins. Before the cream is put in, scald the churn with boiling water to close the pores of the wood, follow immediately with a dash of cold water, then put in the cream, which has been brought to the right temperature, if necessary, by placing the cream crock in a larger one containing hot water. With the churn not more than half full of cream the churning is best done. Brisk churning is desirable in winter, but it is best to go slowly for the first ten minutes at all seasons of the year, so as to avoid frothing the cream, and the ventilator should be pressed down frequently so long as air rushes out. Then the rate of speed is increased to sixty turns a minute for end-over-end churns, and forty-five for churns with a dasher. Avoid over churning. Never suffer the butter to be churned into a mass, or buttermilk will be so mixed with it that it cannot be washed out; the butter will then be streaky, of bad flavour, and will not keep well.

If the churn is stopped when the grains are well visible the butter is then of one distinct colour, because the grains are unbroken, the buttermilk is clear, and is easily removed by about three washings, each lot of water being run off from the churn through a hair sieve. Flavour in winter is considered to be improved by leaving in a slight quantity of buttermilk. This and brining or salting is entirely a matter of taste, requiring careful study and management to suit special requirements.

WORK ON THE HOME FARM.

Carting of every kind is being pushed on now so as to have the horses at liberty for work on the land when required a little later on. We never like missing an opportunity of sowing spring corn early, and therefore always endeavour to get through as much estate work at mid-winter as can be managed. Such demands on the home farm for horses and men are often very inconvenient, and are not easily met without some hindrance to farm work. They are, however, inevitable, and the best plan for the home farmer, in view of avoiding friction and hindrance to his own work at a critical time, is to grapple with estate work now as full-handed as may be, and to get well forward—if possible, to finish—all carting of gravel, timber, and similar things. While at the gravel pit bear in mind any blemishes in yard-bottoms, roads, gateways, and drinking places, and if it can be managed, get material carted for all such purposes during the winter.

We have seen threshing machines at work on a few farms, and again recommend caution in threshing after so much wet weather. The exceptionally high winds in December may have done something to drive moisture out of the ricks, but we still say, Be cautious. Damp corn is not readily sold, nor is it ground or crushed without much difficulty.

As calving goes on throughout the winter the number of calves mounts up, and due care must be exercised in their management. Snug warm quarters, clean dry litter always, wholesome nourishing food frequently, are the main points. Let them have milk or gruel at the least three times daily. The older method of suckling calves morning and evening only had nothing but custom to induce anyone to follow it. It is certain that under it calves became terribly exhausted; that the effect of going so long without food, and then loading the stomach hastily, was so trying as to cause much sickness and loss among them. Teach them to eat some of the best meadow hay early. Once get them to do this and they have always something to turn to; then with abundance of gruel they thrive apace and afford pleasing evidence of the effect of really good management.

HOW TO MAKE GOOD BUTTER.

I HAVE found a very simple method by which butter can be made with no difficulty whatever and in a remarkably short space of time, however hot the weather may be. It becomes, too, perfectly hard, while its keeping qualities are very greatly improved. I think, therefore, it may be worth while calling attention to it. Experienced butter-makers, to whom it has been mentioned, have tried it, and were astonished at the result. It is simply to surcharge the cream with salt by adding a great excess above the usual amount which is, of course, always put into it.

My plan is to put 3 lbs. of salt into a bowl, and mix it thoroughly with the first day's cream. I then keep on adding the cream of each day's supply, stirring it and thoroughly mixing it, until about 4 to 4½ quarts of cream have been mixed and thoroughly combined with the 3 lbs. of salt. This being then churned the butter "comes" in a surprisingly short space of time, even in the hottest weather, and turns out perfectly hard and firm.

The interpretation of the process is that, in the first place, the excess of salt forms a more complete union with the whey than a smaller amount can effect. Secondly, it dissolves the nitrogenous matter (casein) more thoroughly; consequently the butter, by the more perfect elimination of the latter highly decomposable substance, is less liable to become rancid, and so keeps a much longer time than it does by the ordinary method of making it.

The advantage of adding a superabundance of salt is more pronounced in the summer than in autumn and winter. Thus—e.g., there was no difference in time in churning between fresh and highly salted cream on December 10th; but when the temperature of the air itself becomes cool as the season advances the usual method of warming the churn will be found advisable. The other advantages, however, of rendering the butter firm and less liable to rancidity remain the same.

As a practical illustration of the advantage of this method to professional butter-makers, I will add that a farmer in Gloucestershire to whom it was mentioned last summer informs me that his butter is so greatly improved in quality, both in firmness and sweetness, that the demand for it by his customers has much increased in consequence.—GEO. HENSLOW.

OUR LETTER BOX.

Chemical Manure for Meadow Land (Pasture).—The mixture recommended in our Farm article of the 10th inst. (page 42) will answer your purpose well. Apply early in February, and if the land is of a dry nature follow in a month or less with 2 cwt. of salt and 1 cwt. of nitrate of soda per acre, both crushed into fine powder.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1895. January.	Barometer at 32°, and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.		
Inchs.	deg.	deg.	E.	deg.	deg.	deg.	deg.	deg.	Inchs.		
Sunday ..	13	29.033	35.2	34.9	E.	35.0	42.7	26.6	56.6	25.2	0.040
Monday ..	14	28.973	38.3	37.9	S.E.	34.9	43.3	35.0	50.6	31.9	0.040
Tuesday ..	15	29.109	39.7	39.0	S.E.	34.9	42.9	38.2	43.7	32.4	0.010
Wednesday	16	29.059	41.7	40.8	S.E.	35.9	45.7	38.1	48.7	34.0	0.098
Thursday ..	17	29.092	42.2	40.3	S.	37.2	44.6	40.8	49.9	37.3	—
Friday ..	18	29.729	37.2	35.9	S.W.	37.4	45.0	32.8	60.9	29.1	—
Saturday ..	19	29.811	43.1	42.4	S.	37.1	48.0	35.9	52.5	29.3	0.747
		29.258	39.6	38.7		36.1	44.6	35.3	51.8	31.3	0.935

REMARKS.

- 13th.—Snow from about 2.30 to 7.30 A.M.; a little sun in morning; spots of rain about 1 P.M.; fair afternoon, clear evening.
 14th.—Dull, with drizzle and slight showers from 6 A.M. to 1 P.M.; sunshine from 1.30 P.M.
 15th.—Overcast and slightly foggy throughout.
 16th.—Overcast with frequent drizzle and showers till 2 P.M.; gleams of sun at 3.30 P.M.; showers again in evening and night.
 17th.—Rain from 3.30 A.M. to 6 A.M., and dull and showery later; generally sunny in afternoon.
 18th.—Sunny throughout and cooler.
 19th.—Overcast morning; rain from 3 P.M., and steady, heavy rain from 5 P.M. to midnight.

Remarkably low mean barometric pressure, but not much wind. Rain above the average, temperature near it.—G. J. SYMONS.

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A NEW CUCUMBER For 1895.

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Journal of Horticulture.

THURSDAY, JANUARY 31, 1895.

LIME.

THIS being a good time of the year for the application of lime, it cannot be out of place to study a little about its value, first as a plant food, and secondly its functions and uses when applied to soils.

If any kind of vegetable matter be burnt, and the ash which is left analysed, it will be found that a large proportion of this ash consists of lime. It has been proved by experiments that lime is essential for the development and growth of plants. The following plants are taken as examples, and show the quantity of lime present in their ash—In the Grape Vine, 36 per cent.; fruit of Tomatoes, 12 per cent.; roots and stem of Dianthus, 45 per cent.; Chrysanthemum, 26 per cent.; Turnips, 50 per cent.; Potatoes, 20 per cent. This would show that in time a considerable amount of lime will be removed by growing crops. Another important loss of lime to soils is by drainage; Professor Way found on analysing different samples of drainage water, that they contained from 2 to 14 grains of lime per gallon. On an average about 20 inches of rain falls annually upon an acre of land; about one-third of this passes away by filtration, which must necessarily carry with it from 21 to 147 lbs. of lime per annum. It must be clear from the above that lime is an essential constituent of soils, and that it is constantly being removed, hence the necessity of fresh supplies.

When we speak of applying lime to the soil, it is not clearly understood whether it is the caustic, or mild form that we are going to use; we must know something of its chemical nature to understand of what the different compounds of calcium consist, and the changes which take place within the soil. Caustic lime (CaO) is composed of two elements—calcium (Ca), a metal, and oxygen (O), a gas; it is prepared by burning carbonate of lime (CaCO₂) in kilns, when carbonic acid gas (CO₂) is given off, and caustic lime (CaO) is left behind. If caustic lime be put into a heap, and water poured upon it, a considerable amount of heat will be generated, owing to the union of the water (H₂O) with the lime, a hydrate (CaOH₂O) being produced. But if the lime be allowed to slake

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in the air a large quantity will go back into the carbonate form, owing to its union with carbon dioxide from the atmosphere. Lime is also found in nature as a sulphate (CaSO_4), and phosphate ($\text{Ca}_3\text{P}_2\text{O}_8$); the former being the chief constituent of such minerals as gypsum and selenite; while the latter is found in bones, and also in the minerals phosphorite and apatite.

As slaked lime, it can be best applied to clayey and peaty soils; for it is able in this state to decompose the silicates, of which a clay mainly consists, liberating the alkalies, which are soon taken up by plants. It also acts mechanically in modifying the physical properties of clayey soils, the silicates of lime which are formed being more sand-like in their properties. This lessens the tenacity of clays and makes them more porous, which allows the air to enter freely to perform its useful function of preparing food for plants. Soluble salts of iron are injurious as such to vegetation; but lime has the power of rendering these salts insoluble. Slaked lime is the form to be used upon peaty, or soils containing much organic matter (as old garden soils), for it is able to neutralise any vegetable acids which may be formed owing to the decay of the organic matter, forming salts which are harmless, and which may even be of use to plants as food; by decomposing the vegetable matter the inorganic constituents are made available for plant nutrition, and are readily taken up by them.

When slaked lime decomposes the organic matter it unites with the carbonic acid gas to form carbonate of lime; this carbonate keeps the soil in a basic condition, which is of the greatest importance to nitrification, for the activity of the nitrifying bacteria may be hindered by the absence of sufficient lime salts, as may be proved by the beneficial results which have been obtained after an application of chalk. If quick or slaked lime be added to soils in excess it arrests their (the bacterias) activity, and can only be remedied by the application of some green manure. What takes place in the soil by the action of the nitrifying organisms is not clearly understood, but they ultimately produce under suitable conditions nitric acid, which, being a stronger acid than carbonic acid, drives the latter off from lime, and unites to form a nitrate of lime, this being one of the most valuable plant foods present in the soil.

The chief and most abundant supply of lime is the carbonate, examples of which are seen as limestone, chalk, shell sand, and marls, some of the beds of limestone being 6000 feet through them. In applying lime to a light sandy soil it should always be used as a carbonate or sulphate, for in these forms it will make the soil more retentive and better able to hold plant foods. Carbonate of lime from its slow action on organic matter is sometimes called mild lime; this slow action is an advantage in sandy soils, for it is chiefly owing to the humus that sands are able to retain plant foods. If quick, or hydrated lime, be applied to sandy soils it destroys the organic matter; but if it were put on the land and allowed to slake, it would then take from the atmosphere a considerable quantity of carbonic acid gas, much of it passing back into the carbonate form, and might be used if chalk, or some other carbonate of lime could not be procured.

Gypsum, or sulphate of lime, is used on light soils; it supplies sulphuric acid as well as lime to the plant. It can be used with organic manures where a loss due to the escape of ammonia might occur, for it has the power to fix this gas until it can be utilised by the plant.

Gas lime is slaked lime, and contains when fresh from the works calcium sulphide and sulphite. These are injurious to vegetation, but after being exposed for some time to the air they are oxidised and form sulphate of lime. Gas lime is useful for mixing with rubbish heaps, to hasten their decay. Many manures contain a large percentage of lime, so when any of these are used there will be less need to apply lime. Basic slag contains 50 per cent. of lime, mineral superphosphates 30 per cent., bones 25 per cent., guano about 15 per cent., farmyard manure 10 to 20 lbs. per ton. In superphosphate it exists as a sulphate, and in bones and guanos as a

phosphate. The quantity of quicklime to use per acre should be from 2 to 9 tons; twice the amount of carbonate could be used for the same extent of land, and of sulphate from 5 to 10 cwt. per acre.—W. D., *Turnford*.

THE TOMATO SUPPLY.

TOMATO growing is a very important industry, and likely to remain so. In spite of the enormous output of fruit the demand has more than kept pace with the supply, every year seeing a very great increase in the number of consumers. Whether there would not be a glut during August and September if all who have entered on the culture of Tomatoes under glass could succeed in producing a good average crop, remains to be seen. During the early part of last season the prospect was decidedly good, as the plants very rarely set such heavy crops at the commencement. Unfortunately the later bunches of flower failed to set, a scarcity of pollen it was thought having something to do with this failure. In some instances I believe those in charge of plants on which extra heavy lower clusters of fruit set failed to realise that this must mean a greater strain than usual, and did not, therefore, feed them sufficiently.

We have become so frightened of diseases that one remedy, or rather preventive measure—viz., dryness of house and atmosphere, is apt to be overdone. Tomatoes in full bearing require abundance of water and food at the roots, otherwise they are liable to collapse, and we may easily err in the direction of keeping them too dry. Not only do plants insufficiently fed at the roots fail to go on setting clusters of fruit up to any required height above 3 feet, but they are also the first to collapse if attacked by eelworms or fungoid diseases. So plainly apparent was this latter fact that intelligent growers did not hesitate to lighten the crops where they were very heavy, and had good reason to feel convinced they had acted wisely by so doing.

Overcropping, however, was not the sole cause of so many partial failures. The season of 1894 was most favourable to the spread of fungoid diseases. The disease known as "black stripe" seems to be fast on the increase, and was the worst enemy Tomato growers had to contend with last season. It usually first shows itself on the most sappy plants in the form of striped stems, the leafstalks following suit. Sometimes the leaves also become black, while in others they do not. I strongly advise all who have this evil to contend with to adopt preventive measures at the roots. What makes me confident that the cause of the stripes is traceable to the roots is the fact that it is frequently only the upper portion of vigorous plants that show signs of the disease, the lower half being perfectly free. Strong plants failed at the points, but weakly ones collapsed altogether, owing probably to the disease completely encircling the stems underground. Wherever this form of disease has to be combated very little solid manure should be dug into the ground, a firmer more disease-resisting growth resulting from the use of chemicals, as frequently advised in the inquiry columns of this Journal. There is a strong probability that some of these manures are disinfectants, and, according to Professor Griffiths, sulphate of iron is both a fertiliser and a germicide, and I intend using it largely as such this season with a view to thoroughly testing its value. An excess of iron sulphate might probably prove injurious, and for this reason I shall be content to use it at the rate of 10 ozs. to the square rod, mixing it with ashes so as to be able to distribute it evenly and washing it down gradually.

Those who have suffered most from this disease, as well as eelworm attacks, would appear to have grown varieties principally that set the heaviest crops without much trouble being taken with them. If these free setters possessed extra strong constitutions then the selections would have been more justifiable. As it happens Early Ruby, selections made from Large Red or crosses which the latter has helped to bring about, are far from being robust, and are incapable of making much headway under difficulties accordingly. Added to this they are most of them corrugated more or less, and do not therefore sell so well in the markets as do the more smooth round forms. Then, again, corrugated or ribbed fruit are always very full of seed, and seed takes far more out of the plant than does the pulp and core of the more solid smooth round fruit. Ruby is a good early variety, and well worthy of being grown as such; but for succession and main crops give me Challenger, Al, Ham Green Favourite, Duke of York, and such like. Judging from appearances, and the character given by most trustworthy men to the Frogmore Selected, this should prove a great acquisition, and to be recommended to all classes of growers. There is just enough of the old Large Red or some other corrugated form in it to make it a very free setter nearly or quite

all the year round, and yet not enough to spoil either the form of the fruit or the constitution of the plant.

When commencing this paper it was my intention to give the greatest prominence to a matter that I have been frequently consulted on of late, and that is whether or not Tomato growing is an industry in which gentlemen's sons, or others with a moderate amount of capital and little or no experience in Tomato culture, may safely invest, but can only briefly allude to it now. I cannot honestly recommend any inexperienced person, male or female (for the latter are also "on the war path"), to commence Tomato growing for the markets, and have done my best to dissuade several from starting. It seems, however, that the more I argue against their starting the more determined are my interrogators to have a try. Some of them will regret not having taken my advice. Tomato growing is really a great lottery. Some there are who have succeeded well, but there are many others who would gladly take less money than their land and buildings cost, so doubtful is the prospect of gain becoming. Just merely getting a living is not enough, and he must be a smart man who can do that unless something over £800 is invested almost at the outset. Remember cheap glass structures depreciate in value rapidly, and this has to be taken into account when the profit and loss balance comes to be struck. Wood ready prepared and glass ready cut can be bought so cheaply that there is every inducement for the inexperienced to commence building on a fairly large scale, only to find that the heating and other ironwork, labour, water arrangements, and a variety of other expenses have also to be reckoned with. If these can be met all well and good; but in many cases, notably in the Channel Islands, accounts have to be held over and a heavy interest paid to those who have to wait for their money.

Several establishments in Guernsey are in the market. If experts find a difficulty in growing Tomatoes profitably, how much more so will those who know next to nothing about the work? Even private gardeners who have grown a sufficiency or an abundance for their employers find they have much to learn when they commence their culture on a large scale and in a different class of houses. I would not advise any of the latter to resign a comfortable situation in order to commence Tomato growing for the markets; but if they have a family largely consisting of strong boys, and find these regarded as an incumbrance, then if they have the wherewithal by all means strike out a new line—that is to say, Tomato and Cucumber growing. They must be prepared for much hard work and some disappointments; but there is "money in it" if only rightly sought after.—W. IGGULDEN.



PHALÆNOPSIS MARLÆ.

A CORRESPONDENT, "J. T. B.," writes for information on *Phalænopsis Mariæ*, and we may say that though one of the small flowered and small growing species of *Phalænopsis*, this elegant Orchid has found favour with the cultivators who have tried it. The plant was found by Mr. F. W. Burbidge in the Sunda Isles, when he was travelling for Messrs. J. Veitch & Sons, and bears the name of the discoverer's wife. An admirable coloured representation of it appeared in the second volume of the "Orchid Album," and Mr. B. S. Williams thus describes the habit and flowers of the plant:—"The leaves are deflexed, distichous, ligulate, acute, glossy, and obscurely striate. The flowers grow in a lateral, drooping raceme, and are about 1½ inch across; the oblong bluntish sepals and the somewhat broader petals are white, each marked with about six transverse bars of chestnut brown, the basal blotches being amethyst; the lip, which has the middle lobe obovate oblong apiculate, convex, and plane, not pilose, is of a rich deep magenta-purple margined with white."

CALANTHES FAILING.

FOR fifteen years I have been a successful grower of *Calanthes*, but for the last two years the *vestita* section have deteriorated in size, and this year have failed to flower. The buds decayed when about half an inch high. *Veitchi* is as strong as ever, and has had a flower spike fully a yard long, and both have been treated alike in soil and temperature. Could you give me a little advice on the subject?—M.

[It is difficult to account for these occasional failures with *Calanthes*, which often puzzle experienced growers. As you have been successful for so long, we venture to predict that

with carefully considered treatment the plants will soon come round. Perhaps the best way to help will be to mention a few causes of failure, and you will be the best judge as to which will meet your case. One of the most frequent is wintering this Orchid in too low a temperature, and from the fact of *C. Veitchi*, which is a better grower than *C. vestita*, doing well, it is possible that herein lies the mischief.

Deciduous *Calanthes* should be wintered in the pots in which they have been grown in a temperature of not less than 55°, and if 5° higher so much the better. They should not be repotted until the growths are starting from the base, when the roots will at once commence to take hold of the new compost. Where no fire heat is afforded during late summer the night temperature often falls much lower than is advisable, and causes a good deal of mischief among Orchids. The condensed moisture, which settles on the leaves in the form of dew, is all very well during warm summer nights; but as the days shorten and the nights get colder, fire



FIG. 15.—PHALÆNOPSIS MARLÆ.

heat must be turned on to dissipate this and create a more buoyant atmosphere.

Calanthes are also subject to a kind of black spot, to which many failures are attributable. Although this may be primarily caused by inattention to details in the matter of temperature and moisture, when once it obtains a hold on the plants no amount of care will rid them of it entirely, and in bad cases it is much better to obtain a fresh stock than to attempt it. Arrange the plants while growing so that they obtain all the light available, and only shade sufficiently to prevent injury to the foliage. Avoid wetting the pseudo-bulbs unduly after the foliage has fallen, and from that time onward maintain a free circulation of warm dry air about the plants.]

CALANTHE VEITCHI.

As W. Penton (page 67) so ably describes this charming winter flowering Orchid under the management of Mr. Friend of Rooks' Nest Gardens, I am confident a few remarks on the management of *Calanthes* from Mr. Friend would prove an invaluable aid to myself and many other readers of the *Journal of Horticulture*. Seldom do we see examples producing exceptional long spikes of 5 feet 8 and 5 feet 9 inches in length, which must be indicative of first-class culture.—D. PHILLIPS, *Lindley Hall Gardens*.

ODONTOGLOSSUM TRIPUDIANS.

THIS *Odontoglossum* has not found so much favour with growers as some others, nor can it be classed as a first-rate species. I have, however, lately seen several very good varieties, these being imported along with and as *O. Pescatorei*, which fine species it closely resembles in habit. The flowers of the best varieties are nearly as large as those of *O. triumphans*. The sepals and petals are yellow, more or less blotched with chocolate brown; the lip narrow in the middle and rounded in front, yellowish white with violet purple markings. The plant comes from Peru, and thrives in company with the coolest section of the genus.

ADA AURANTIACA.

The individual flowers of this species are not large or in themselves attractive, but as they are very bright in colour and plentifully produced on the gracefully arching racemes they are very welcome just now. This plant needs to be associated with other Orchids to produce the best effect, the bright orange red contrasting well with the quieter tints of various other kinds. It is easily grown under the same conditions of culture as *Odontoglossum crispum*. *Ada aurantiaca* is a native of New Grenada, and is the only member of the genus in general cultivation.

VANDA CŒRULESCENS.

This is one of the most charming of the smaller flowered Vandas, which section seems to be rapidly growing in favour. The blossoms are produced on erect simple spikes, each bearing from eight to twelve. They are about $1\frac{1}{2}$ inch across, the sepals and petals mauve, the lip violet. The plant grows from 1 foot to 18 inches high, the leaves being about 6 inches in length, and like *V. cœrulea* peculiarly notched at the apices. This species thrives well in baskets suspended from the roof in the Cattleya house.

The basis of the compost should be formed of sphagnum moss, and some rough pieces of charcoal must be placed in the bottom of the basket. The plants may have new compost if this is needed immediately after flowering. Great care is necessary in removing plants of this description from the baskets in which they have been growing, especially if they are thriving and the roots are much entwined about the rods of the basket. In such a case these latter must be carefully sawn through just inside the corners, when all that the roots are not clinging to may easily be removed, and those that the roots cannot be separated from without injury left and placed in the new baskets.

Cut off all dead roots before replacing in the baskets, and if the lower part of the stem is decayed remove this also with a sharp knife. When returned to the house only sufficient water must be given to keep the sphagnum fresh until the roots are seen to be actively taking to this. Give more as growth proceeds, and on fine days sprinkle the foliage freely.

The plants must be kept free of insects, especially the small brown scale which clings so tenaciously to this class of Orchid. Cockroaches are also very fond of the roots of this and kindred plants and frequently do much mischief. These must be sought for at night with a lantern and killed, or when they are in strong force they may be poisoned with arsenic. The best way to do this is to make a stiff paste of white sugar, flour, and lard, and mix pure arsenic with it in the proportion of one to four. Lay this about near the plants that have been attacked in the evening, and the effect of it will be seen next morning. If they are not all killed the first time, lay a second lot of poison down in about a week's time.

V. cœrulescens has been known to botanists since 1837, when it was discovered in Burmah. It was not, however, introduced to this country until 1869. The variety *Boxalli* is a still more recent introduction, having flowers much lighter than those of the type.—H. R. R.

ONION CULTURE.

LAST year for the first time I raised the entire supply of Onions under glass. The seeds were sown in ordinary cutting boxes, and transplanted into the open garden. My reason for doing this was, that seeds sown in the open in the usual way seldom provided bulbs, and some years maggot cleared off whole rows.

Of course, methods of deterring the Onion fly from laying eggs were tried, and means were taken to destroy the maggots, but in no single instance with any material success. Now, however, by the simple plan of raising the seedlings early in the year the difficulty has been overcome. Not only was the maggot evaded, but the crop of Onions in 1894 was the heaviest I have ever grown. I had in previous years raised in this manner a few hundred plants in order to secure extra large bulbs, and consequently had no fear of the result other than as regarded the keeping qualities of the bulbs. Even in this respect it would appear that early sowing has a distinctly beneficial effect.

The present is a suitable time to sow the seeds. Last year some were not sown until the beginning of March, and though they grew as well as the others there was the greatest difficulty in ripening them off. On this account I would not delay sowing later than the first week in February. After the seeds have germinated the plants must be kept just on the move. There is a danger in forcing the plants, and in my experience they grow with enough speed when in a cool structure. The ideal would be a mild hotbed, where the seeds could be sown on a bed of soil under the protection

of a frame. Nothing is gained by transplanting the seedlings into other boxes or frames. I had been accustomed to do so, but the number grown last year rendered it unadvisable to attempt it. The seedlings, therefore, were transplanted direct from the boxes to the quarters set apart for them, and if anything I think we gained by this simpler method. The plants were very small when set out towards the end of April, but they overtook and in the end surpassed autumn-sown plants.

Onions, like Leeks and Celery, must have vast supplies of manure. A fair quantity of manure for either crop is a thickness of 6 inches over all the ground. What I prefer is a mixture of horse droppings and cow manure. I do not bury any of it deeply, and it is a moot point whether the manure should be laid in a layer at an equal depth below the surface, or incorporated with the soil. I prefer the latter method myself. Soot, superphosphates, and nitrates are good stimulants for Onions. I may add that it is very important that the soil should have been thoroughly well worked by means of light surface forkings, previous to setting out the young plants.

What about the extra labour? someone may ask. In reply, when the time taken to sow out of doors, the thinning of the plants, and hand-weeding, is set against simply transplanting a certain number of plants, it will be found there is the least labour involved in raising the plants inside and afterwards transplanting. —R. P. BROTHERSTON.

OVERGROWN TREES AND SHRUBS.

FROM various causes these often become too large for their places, and encroach on paths, making them impassable without curtailment of the branches. The proper time to operate on trees or shrubs that have become aggressive is in advance of their annual growth, deciduous trees requiring to be cut sooner than evergreens, as they are more liable to bleed from their possessing vascular tissue far more abundantly than do evergreens. Deciduous trees or shrubs should always be acted on by severe pruning while quite dormant, or preferably in the early autumn months when the sap (so-called) is receding, which insures the speedy healing of the wounds by the then comparative solidity of the fluids and the retrocession of them from the external parts. Of course, the term "circulation" does not apply to plants; indeed, there is no analogy whatever between plants and animals in this respect, for it is not a matter with the former of circulation, but of diffusion. But there is what is known as the rise and fall of the sap, which must be recognised for purposes of pruning.

The manipulation of deciduous trees should be carried out while there is little movement of watery matter from the roots, and then the substances in the cells adjacent to the severed parts have time to solidify and form a new epidermis at the points around where the bark joins the wood by the energy of the protoplasm of the cambial layer, the cells of the bark or cortex being oxidised, or rather their contents implanted on the walls, and made more or less impermeable by fluids. A similar process insures the closing of the exposed cells of the wood, the contents of which retreat more or less, and they become filled with air. Thus pruning when the sap is receding allows of a barrier being interposed between the living and the exposed cells, and they are consequently unaffected by external influences. When the pruning is performed in the spring there is danger of bleeding in some cases, as in that of the Walnut; but the Oak bleeds very little, yet several bleed profusely, and this materially affects the pushing of fresh growth, for until the forces are concentrated on the latent buds no growth can take place, and this cannot be effected until the dis severed cells or those adjoining cease to transmit sap by osmose. This can be prevented to a great extent by an antiseptic applied to the wounds, but it is better to prune so that the sap recedes, and then close the pores by an adhering substance, otherwise they only form receptacles for fungus spores, that may or may not germinate and pierce the internal tissues.

When pruning is done late and no bleeding occurs the wounds heal over quickly by the growth of cellular matter from the cambial layer, but as no growth takes place of this nature from the wood cells they indurate, and can only be covered with fresh bark and growing cells from the cellular tissues last named, which is effected by growth over the wound by the process of occlusion. But growth from late pruning is not nearly so strong, nor the buds started so numerous, as from late summer, or early autumn, or even early spring pruning. By the latter is meant no apparent activity in the buds, and that is the latest time at which deciduous trees or shrubs should be pruned, then the non-bleeding kinds concentrate the energies on the latent buds, and they start into growth at the natural season, pushing vigorous shoots, which have time to develop and become thoroughly matured in wood and buds before autumn. On the other hand, trees or shrubs liable to

bleed, or even to gum, from the wounds should be pruned with the declining sap, say as soon as the leaves give indications of maturing, which is generally at the early part of October. Mr. Rivers advises this period for the pruning of Cherry trees, which are liable to gum from late spring pruning; and Mr. Bunyard goes farther than that, advising all pruning to be done in the autumn, or while the leaves are on the trees; this, of course, has reference to fruit trees, but what is good thing for them must be suitable for others of a similar nature. It is certainly desirable to so prune deciduous trees and shrubs that the buds to be started may have some little time to prepare themselves for the effort they are expected to put forth, so as to be able to profit by the flush of sap in the spring, and utilise the matter which passes from ripened wood by diffusion to wherever growth is proceeding. Remember that the latent buds are at a great disadvantage as compared with those that are in a visible state, and that they require all the benefit of a preparatory period, in order to profit by the nutrient elements, and all the time that can be given for their development and perfecting of the resultant growth.

Most deciduous trees and shrubs in a healthy state may be cut back to any extent with a certainty of their pushing fresh growths freely. Old trees, of course, push less vigorously than young, but there is no reason why most should not be pruned to the extent the proposer wishes, and top-heavy or even dangerous, or overshadowing trees near dwellings be pollarded, and new heads secured that will better serve the purposes of ornament, shelter, and seclusion. The thing to do is to effect it thoroughly at the right time, and when the wounds are dry dress them with a substance that will exclude wet from the wood and prevent the spores of fungi settling, growing, and entering the tissues. For large limbs I know of nothing better than gas tar, which should be used in a careful manner with a stiffish brush, confining the painting to the wound and not smearing it on the live bark. Stockholm tar thinned to the proper consistence with boiled linseed oil also forms a good antiseptic dressing for large wounds, and it excludes fungal germs from the pores. Either is better than paint, for no paint acts so effectively as the tar dressing. For small wounds on shrubs shellac dissolved in alcohol answers, and French polish will prevent bleeding even after the flow of sap has commenced.

Limes bear cutting better than, perhaps, any other tree, and the pollards that are seen in towns, even in the "hearts" of some old cities, attest their value as shade and screen trees. Elms and Oaks also bear the saw well, pushing growths from almost any part of the stem desired. Maples likewise bear topping, but the Beech rebels against the process, and Horse Chestnut must be begun with young or it will make a poor effort at forming a head. Willows are sure to put forth a second head better than the first, and it may be renewed as required from time to time with profit. These stand the sea breezes well, and have an appropriate association with water.

Overgrown Lilacs in shrubberies only require the old heads cut away to insure fresh growth and better form from the root, if care be taken to thin the sprouts and so treat the growths by timely manipulation as to secure an evenly balanced head. Lilacs make fine standards, and ornaments they are in town gardens when they have clear stems of about 6 feet height and the heads the shape of a half-ball about 8 feet in diameter. The wealth of colour and fragrance these bear in early summer is enormous.

Straggling Mock Oranges and nearly every deciduous shrub yields good returns for cutting clean down and beginning afresh. Of course there is a loss of flowers for a time, but there is the pleasure of seeing the garden in a thriving state instead of encumbered with gaunt "specimens," which shut out light and air from themselves and everything else. There is no radical remedy for overgrown shrubberies but a thorough overhaul. In extensive ones the back or interior part should be commenced with first, leaving sufficient of the best trees or shrubs here and there to give an appearance of height gradation from the outside, cutting the others well back to obtain fresh growths near the base, and low enough in all cases to form a good foundation. All the rubbish can be cleared away, and nothing further will be required than keeping down coarse weeds and shortening irregular growths in July to secure representative specimens. After three years the front line can be cut away—that is, treated similarly—and this will disclose a flourishing shrubbery behind, which will be enhanced in effect by the greenery in front. This will advance quickly, and thus a neglected shrubbery may be rejuvenated and even made pleasing.

Evergreens may be treated in a similar manner. Evergreen Oaks bear any amount of cutting for producing compact forms, but the work must be done as early as the weather becomes fairly mild in spring. If deferred till the buds are moving in May, the growths are late, and they are sometimes cut by the frost after a damp mild autumn.

Hollies, no matter how unshapely, may be transformed into handsome specimens by the use of the saw and tree pruner. I have operated on many trees, ungainly in habit and overgrown for their places, with the most satisfactory results. April is, perhaps, the best time to start old Hollies afresh, mild weather being chosen, and it is important to cut far enough back so as to give opportunity for shaping afterwards and allow for increased growth. If pruned late, slight bleeding occurs, and there is danger of the retarded growths not ripening sufficiently to stand the winter without discolouration from frost; the bleeding shows that evergreens have some vascular tissue, but that is not material.

Overgrown and poor-foliaged Portugal Laurels become quite charming in leafage and colour after a cutting down. They may be cut to the barest stumps, and will push growth which in a couple of years will form symmetrical heads, but it is essential to reduce the number of growths when they come in clusters, leaving the best in place and vigour, and shorten irregularities just before growth starts in the spring, or after the summer growth is ended.

Common Laurels always grow to a certain height and then become uncouth, whole limbs often dying off. The best plan is to cut them all down and begin afresh. The inside of the shrubbery can be done first, and in three years afterwards the outside, the place being made as notable for thriving shrubs as it previously was for decrepit. It should be remembered that the success of the pruning depends on its thoroughness. Half measures are of small use in neglected shrubberies, or even with hoped-for specimens on lawns. The cutting of the trees or shrubs on these will most likely leave bare ground. That, I find, is best treated with liquid manure, which can be made to sink into the ground by drawing rings of dry soil around the stem outwards about a foot apart, and into these pouring the liquid, giving a few good soakings after rain. The soil can then be levelled, and the ground sown with lawn seeds, and the specimens will be displayed to the best advantage.

—G. ABBEY.

VIOLET CULTURE.

As the time for the division of the old plants for next year's stock is drawing nigh, perhaps a few remarks on the method that was adopted here last season may prove useful to some readers of the *Journal of Horticulture*.

We have for several years past, for want of room, been in the habit of doing away with a five-light pit of Marie Louise, so I determined to divide the plants there and then, which was the middle of February, instead of waiting for those in the cold frames, which had hitherto been the case, dividing them as late as the middle of April.

After filling a two-light frame with fermenting material, and covering with about 4 inches of fine soil, the crowns were inserted 4 inches apart, watered, and on fine days occasionally syringed. They were found well rooted by the first week in April, when they were planted in a border previously prepared, having been deeply dug, and a sprinkling of soot with equal parts of leaf soil and Mushroom bed refuse worked in.

The plants were disposed 10 inches apart each way, and so well did they thrive that by the middle of August they were touching each other. I am not speaking of plants with a single crown and five or six straggling runners, but bold clumps, 6 inches high and a foot in diameter. More space will be allowed them this year. About the beginning of August they commenced flowering profusely; this led me to think that such early division might be a mistake, but it is not so, as has been proved by the enormous number of large, well-coloured flowers which we have been able to gather this winter. At the present time the plants are smothered with buds and partly expanded blooms.

Strict attention was paid to the removal of all runners, syringing, and frequent stirring of the surface soil, two sprinklings of soot being also given between the rows. The plants were placed in their winter quarters by the end of September, and voted by several practical men to be the finest they had ever seen; certainly they were the finest ever grown here. As is generally the case, after filling the usual frames there were several good plants left over. These were potted, and they amply repaid us for the trouble. They were stood on shelves in the Peach house, the genial atmosphere and gentle syringing necessary to start the trees seemed to suit them admirably, as they gave a profusion of flowers during December.

Doubtless there are some amongst the many readers of this valuable *Journal* who have adopted the plan described; but to those who have not, I say try it. I am sure they will be more than satisfied with the result, and I think twelve months hence will be forced to admit that it is a step in the right direction.—WM. POTTS, *The Grove Gardens*.



WEATHER IN LONDON.—The weather during the past week has been most unfavourable for gardening, frost and snow having been prevalent the whole time. On Sunday evening and Monday morning about 2 inches of snow fell. There has been from 12° to 15° of frost nightly, and considerably more in some of the suburbs. Snow fell on Wednesday morning. Last week we referred to the peculiar nature of the weather on the day prior to publication. One of the daily papers summarised the matter as follows:—9.30 A.M., raining; 9.35, intense darkness; 9.40, thunder and lightning; 9.50, terrific hailstorm; 10.0, heavy snowstorm; 10.30, sunshine.

WEATHER IN THE NORTH.—On Friday and Saturday last another severe snowstorm blocked railways and roads in the North of Scotland. Slight falls occurred in the middle of the country on Saturday night and Tuesday morning, when fully an inch lay on the low grounds. The frost has been almost continuous for a week, from 3° on the 24th to 18° on Monday. There was an appearance of more snow on Tuesday morning with 9° of frost recorded.—B. D., *S. Perthshire*.

THE ROYAL GARDENERS' ORPHAN FUND.—The usual monthly meeting of the Committee took place at the Horticultural Club on the 25th inst., Mr. William Marshall presiding. The following special subscriptions were announced by Mr. Barron:—Mr. M. Todd, seedsman, Edinburgh, sale of flowers, £13 10s.; Mr. H. J. Jones, nurseryman, Lewisham, boxes in his Chrysanthemum houses, £9; the Midland Carnation and Picotee Society, per Mr. R. Sydenham, £5; Mr. J. Kipling, The Gardens, Knebworth, for skating on Knebworth lake, £2; Mr. H. Herbst, Richmond Road, Kew, £1 1s.; and Mr. W. H. Divers, The Gardens, Belvoir Castle, 8s. 4d. From boxes the following sums:—Mr. William Marshall, Auchinraith, Bexley, £1 7s. 10d.; Mr. J. Hughes, Harborne, Birmingham, £1 3s. 3d.; Mr. George Fry, Lewisham, £1 1s. 10d.; Mr. H. Perkins, The Gardens, Green Lanes, Henley-on-Thames, 10s.; and a number of smaller sums from boxes, all of which were most acceptable. The Secretary submitted a draft report and balance-sheet, both of which were approved and adopted, for presentation at the annual general meeting at the Cannon Street Hotel on February 8th.

MAKING WREATHS.—The article by "H. D." (page 65) would be welcome to a large number of readers, as the subject of wreath-making is not often written about; nevertheless, it is often a part of a gardener's duty. "H. D." only recommends two rings being used for wreaths of 3 feet or upwards in diameter. I have always found it better to have two even in small wreaths of 1 foot or 18 inches in diameter, as when only one is used there is a danger of the material of which the wreath is made slipping round. It cannot do this when two are used, and a much firmer base may be made. For beginners and those who only have this kind of work to do occasionally, the latter, I think, will be found the better way.—J. S. UPEX.

HERBACEOUS CALCEOLARIAS.—I had the pleasure of seeing a very fine collection of these plants the other day, many of them already in flower. The seeds may be sown at intervals from June to August, and care should be taken to sow as evenly as possible, but it is not advisable to cover them with soil. When the plants are large enough to handle, prick out about 2 inches asunder in pans or boxes, still keeping them in a close shaded situation. As they attain size they must be placed singly in 3-inch pots, keeping them as near the glass as possible. When necessary they can be shifted into 5-inch pots, in which they may be wintered—a frost-proof pit or shelf in the greenhouse are the best positions—just allowing enough water to prevent the plants flagging. Remove all dead leaves, and immediately green fly appears fumigate mildly two evenings in succession. By the end of January the plants will require another move into 7 or 8-inch pots, with abundance of drainage, and a compost consisting of two parts light fibrous loam, one of sheep's droppings sifted, and one of leaf soil with a good dash of sand. At the middle of April the plants will commence flowering, and will continue for a couple of months, providing air and water are given when necessary. The flower stems should be supported with a neat stick, and for seed purposes the best blooms only ought to be fertilised.—G. BURROWS, *Warwick*.

GARDENING APPOINTMENTS.—Mr. J. W. Sigee has been appointed head gardener to Capt. Drummond, Enderby Hall, Leicester. Mr. E. C. Cook, formerly under Mr. Fyfe, at Lockinge Gardens, as head gardener to the Rev. H. A. Berners, Harkstead Rectory, Ipswich.

TADCASTER PAXTON SOCIETY.—At a meeting of this Society on January 17th, a paper was read by Mr. John Snell of The Gardens, Grimston Park, on Begonias and Gloxinias. It was highly appreciated, and an interesting discussion followed. A vote of thanks to the essayist closed the meeting.

I SHALL be greatly obliged if any readers of the *Journal of Horticulture* can inform me how I may properly CURE PODS OF VANILLA. Through information given in the *Journal* of April 5th, 1888, I fertilised a few flowers; the pods resulting are now 8 and 9 inches long. I want to know when to cut them, and how to treat them afterwards.—J. CRISPIN, F.R.H.S.

EXETER GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—A meeting of this Society was held on the 23rd inst., when Mr. Edwards, gardener to Mr. James Hare of Honeylands, Whipton, read a paper on "Melons and Cucumbers, and their Culture." The essay was in every way a praiseworthy one, all the salient points in the culture of these plants receiving attention, and thus much practical information was conveyed.

MR. BLACKMORE'S FRUIT.—Our correspondent "H." writes again on this subject, stating that the prices Mr. Blackmore obtained, and these alone, prevented his undertaking being profitable. Our correspondent, we are sorry to say, informs us that Mr. Blackmore is very ill, and therefore we refrain from inserting any more controversial matter on the subject that has been under discussion—at least for the present. We think, however, our correspondent can say something on the disposal of fruit generally that would be useful if he has time to devote attention to the subject.

AMERICAN BUTTERNUTS.—Now that a growing interest is manifest in the subject of Nut culture, Dr. Hoskins observes that too little is said about the Butternut, especially for growing in the cold north. In quality the Butternut is rich, and, to some people, it is more agreeable than that of the English Walnut, but its rough outside is not attractive and its shell is hard. We have never heard, says the "Garden and Forest," of any attempt at growing select varieties, although the wild trees differ very much in the quality of their nuts. Perhaps some varieties of value could be secured by crossing our native Butternuts with the foreign species, and a seedling Butternut will bear when it is quite young. Dr. Hoskins planted a few Butternuts in rows sixteen years ago, and the trees from this seed have been bearing good nuts for several years, and he finds that the best varieties can readily be grafted on trees bearing inferior nuts.

RAISING PEAS UNDER GLASS.—Whilst some gardeners prefer to have Peas sown thinly in pots to plant outdoors later, and others employ strips of inverted turf, not many, I think, use long, narrow wooden troughs for the purpose. These may be made 2 feet long, 3 inches wide inside, and 4 inches deep. One side and the bottom should be nailed to the ends, whilst the other side should be merely kept in place by ties of stout string or flexible wire. Filled two-thirds with good soil, the seeds sown thinly, then covered nearly to the top with fine soil, well watered, and stood in a frame or house in gentle warmth, growth soon ensues. From twenty to thirty of these troughs sown in this way will give a good early planting, and will under glass occupy a very limited space. When the plants are a few inches in height and hardened they may be easily transplanted in bulk into deep drills by merely removing the loose sides of the troughs.—A. D.

FLORIDA ORANGES.—The latest news from Florida shows that the Orange crop will not be a total loss in some of the groves in the central part of the State and along the south-western coast. Although heavy frosts prevailed in these parts and the thermometer fell to 28°, there was no long-continued cold, as throughout other sections, where the freezing weather lasted for three days, and the Oranges were frozen solid on the trees. Later on these Oranges dropped, and the ground was thickly covered with useless fruit, and in many instances the leaves also fell, while the bark burst the entire length of the trunks. Besides the supplies of Mediterranean fruit under way to supply the deficiency, the New York market is, says a transatlantic contemporary, ready to take the supply from Jamaica, Porto Rico, and Cuba, so that, although there will not be as many Oranges of the first quality as was expected, there will be no scarcity of fairly good fruit at reasonable prices.

— BRANCHES of Tangerine Oranges, each bearing a dozen fruits in a setting of dark glossy foliage, now make one of the most attractive features in the fruit stores of New York. The best of them come from glass houses in southern New Jersey, and sell at the rate of 25 cents for each Orange.

— THE AMERICAN FORESTRY ASSOCIATION.—In the report of the Executive Committee of this Association, at its recent meeting in Washington, it was proposed to introduce into Congress Bills to provide for obligatory courses of instruction in forestry at the agricultural colleges, as well as a course of lectures at West Point, a post-graduate course at the Department of Agriculture, and scholarships for students in forestry to be sent abroad.

— CHEMICAL MANURE FOR ALPINE PLANTS.—Dr. Hugo Müller has concocted a mixture which he applies to all his rock plants with, he says, beneficial results. According to the "Garden and Forest," it is composed as follows:—40 gallons of water, 2½ ozs. potassium phosphate, 1½ oz. potassium nitrate (nitre), 1½ oz. magnesium sulphate (Epsom salts), 1½ oz. calcium nitrate. The calcium nitrate is prepared by taking 100 ozs. or less of chalk, dissolving it in dilute nitric acid until it ceases to give off carbonic acid. This leaves a solution of 1½ oz. of calcium nitrate for each oz. of chalk. This is mixed in a paraffin cask, and the plants are watered with it about once a fortnight during the growing season.

— LIQUORICE IN AMERICA.—As an instance of the increase in the importation of Liquorice root into America, where it is stated to be largely used in the tobacco manufacture, it may be mentioned that out of the total quantity of root and paste shipped from Batoum in 1893, 16,720 tons were forwarded to the United States, the balance of 1196 tons being shipped to England and France; out of the latter-mentioned amount only about 300 tons were paste, and the rest pressed roots. Over-production has, says a contemporary, brought about more or less a crisis in this trade, and about 14s. 7d. was being paid, towards the end of last year, to the peasantry for every ton of root delivered at the factories in the Governments of Baku and Elizavetpol. The result was that little or no root was being collected by the natives, and it is said that in consequence of the large numbers of pressed roots in stock two out of the three root-pressing works of the Caucasus remained inactive during a portion of the past year.

— THE NATURAL HISTORY OF PLANTS.—We have to acknowledge the receipt of Nos. 8 and 9 of this standard publication. The subject has now reached the interesting stage of fructification and fertilisation. In the realm of organised tissue, whether vegetable or animal, the questions of impregnation and reproduction have always been those of absorbing interest to mankind. In the customs of savages and in the religious systems of all peoples we see the emblems, theories, and ceremonies (often grotesque and startling to the ordinary sense) which seek to explain these phenomena. With the advent of modern science the question of reproduction assumed an additional importance, and culminated when Darwin published his conclusions regarding the origin of species. These conclusions were to a great extent based on his investigations into what his grandfather poetically designated "The Loves of the Plants," but which he more materialistically named "Cross and Self Fertilisation of Plants." The results of his labours, together with those of his enthusiastic followers, are embodied in the pages now under notice, and persons desirous of obtaining the latest information on this question will do wisely to purchase the work.

— BACTERIA.—Most of the diseases that afflict plants and animals are now attributed to small minute organisms called bacteria, and yet the manner in which the work is performed is something of a mystery. Many believe that in animals the injury which bacteria do comes from their power to introduce nitric acid in injurious quantities. One singular feature about them is that different kinds do not seem to be able to live in harmony together. Vinegar, for instance, is the result of the action of a species of bacterium, and yet it is able to destroy almost all, or perhaps all, other species with which it comes in contact. It is bacteria which first by their presence turn sweet Apple juice into cider. After this has been accomplished they disappear, and a new set takes their place, which changes the cider into vinegar. It is on account of this peculiarity of a bacterium of insisting on having the whole field to itself in disease, that vinegar is so useful in various disorders of animals, as this bacterium is found to destroy others of its family. In cases of cholera or similar diseases in animals, vinegar has been found to easily destroy the other bacteria which cause so much trouble.—("Meehans' Monthly.")

— THE MISSOURI BOTANIC GARDEN.—Six years ago, under the will of the late Henry Shaw, this garden was formed at St. Louis. The fifth annual report received from Mr. W. Trelease, the accomplished director, forms a substantial volume, and contains, in addition to the record of the year's work, the annual flower sermon, the proceedings at the annual banquet of the trustees of the garden, and several scientific papers of much value.

— DISEASE IN THE LOMBARDY POPLAR.—According to "Meehans' Monthly" few trees have been so persistently cleared away by disease in America as the Lombardy Poplar. It is extremely rare to find any in Eastern Pennsylvania that have not been nearly destroyed out of the many thousands that have been planted at various times. It does not seem to attack the tree in its younger years, but after it has grown to some 20 or 30 feet in height the trouble begins, until the tree gradually becomes little more than a huge stump.

— LIVERPOOL HORTICULTURAL ASSOCIATION.—The sixteenth annual general meeting of the above Association was held in the lecture room of the Free Library, William Brown Street, Liverpool, on Saturday, January 26th, when there were present about seventy members. Mr. T. White presided, and called on the Sub-Treasurer (Mr. G. Blackmore) to read his report, which showed a loss on the summer show of £226 5s. 4d., and on the autumn show of £95 10s. 6d., or a total of £321 15s. 10d. In the bank and from other sources there is still left a balance to the good of about £140. A sum of 3 and 2 guineas was given respectively to the Gardeners' Royal Benevolent and Royal Gardeners' Orphan Fund.—R. P. R.

— THE STUDENT PARSNIP.—I was fortunate enough to meet with a true stock of this very excellent Parsnip the other day. The skin and flesh is very white, the form of a handsome tapering character, roots never unduly large, long, or coarse, indeed in form more closely resembling that of a good new Intermediate Carrot. The top or shoulder is very much of the Carrot nature, being rather elevated than flat, and is much the reverse of that of the Hollow Crown. An attendant at one of the Surrey vegetable lectures kindly brought me a sample of the true Hollow Crown also, with its deep crown set in a round ridge of white flesh, to show the distinct characteristics of the two varieties. Student was reputedly raised by Dr. Buchanan from a cross between the garden and wild Parsnip, and when first introduced seemed very distinct. Of late Student stocks seem to have resolved themselves in many directions into older varieties.—D.

— QUASSIA AS AN INSECTICIDE.—The original Quassia wood was derived from *Quassia amara*, L., a small tree of Surinam. The supply, however, fell short, and the Quassia of commerce is now almost entirely derived from the tree known as Jamaica Quassia or Bitter Wood (*Picræna excelsa*, Lindl.). This is a large tree 40 to 60 feet high, with a trunk sometimes attaining a diameter of 1 to 2 feet. It has pinnate leaves not unlike an Ash, hence one of its colonial names, Bitter Ash. The flowers are small, yellowish-green in colour, followed by small black berries. Quassia is imported into this country in billets or logs. Usually the smoothish grey bark has been removed. The wood is of a pale yellowish colour; it has no odour, but is of an intensely bitter taste. Quassia chips are official in the Pharmacopœias of Britain, India, and the United States. They possess tonic and stomachic properties, and are valuable in dyspepsia and debility. Bitter cups (in which water allowed to stand acquires a different flavour) are made from Quassia wood. The active principle is Quassin or Quassite, which appears in small white crystals, very bitter and inodorous. It is present in the proportions of about one-tenth per cent. Although an infusion of Quassia is harmless to human beings, it is remarkable that the drug acts as a narcotic poison to animals. It is used in what is known as *pâpier mouri* to destroy flies, and fruit and Hop growers also use large quantities at certain times of the year to destroy aphides and so-called "blights." To prepare an extract of Quassia on a large scale it is recommended to use very fine chips and boil them in water with soft-soap. A simple infusion without soap is, however, quite as effective, and for use in greenhouses the latter is preferred. Quassia water is odourless, and perfectly safe to use. In these respects it is preferable to both kerosine emulsions and to tobacco water. There is always a certain amount of risk in using kerosine emulsion even in the most careful hands, and besides, the smell is specially objectionable. If more widely known, it is probable that Quassia extract, for delicate plants in houses, would almost entirely take the place of tobacco water and largely also of kerosine emulsion. If sprayed regularly over the plants it would keep them entirely free from insect pests.—("Kew Bulletin.")

— **FLOWERS IN THE SCILLY ISLANDS.**—The delightful labour of flower-farming is steadily on the increase among the people of the Scilly Isles, the astonishing quantity of 40 tons of cut flowers, chiefly Narcissi, being sent over to England weekly during the winter season. The farms, which employ many hands and much capital, are excessively interesting, and the sight of them in February or March is worth even the risk of a rough voyage. Literally millions of white and yellow blooms, richly fragrant, nestle between tall hedges of *Euonymus* and *Veronicas*, and form a fragrant picture—as exquisite as it is unique.

— **THE METROPOLITAN PUBLIC GARDENS ASSOCIATION.**—The twelfth annual report and financial statement was placed before this association at the last meeting, and both were adopted. The statement of accounts for the year 1894 showed that the income was £4300, against £6600 in 1893, and the expenditure £5400, necessitating a considerable call upon the reserve fund to make good the deficit. It was announced that grants of £20 and £10 10s. had been received from the Grocers' and Salters' Companies, and that a lady had sent £25 for a drinking fountain; that trees had been planted, at the suggestion of the Association, in Exhibition road; and that the Association was in negotiation for the purchase of a site for a playground in Deptford. It was agreed to give £160 towards the laying out of Bartholomew Square, E.C., and to lay out the eastern end of the churchyard of Allhallows, London Wall, if the rector would maintain it as a public garden.

— **WOKING AND DISTRICT HORTICULTURAL, COTTAGE GARDENERS' AND FANCIERS' ASSOCIATION.**—The above young but flourishing Association held its first annual dinner at the Assembly Room, Railway Hotel, Woking, on Wednesday evening, 23rd inst. The chair was occupied by J. Orlando Law, Esq. (President of the Association), and the vice-chair by Dr. T. C. Eager. The tables were well decorated with plants kindly lent by E. H. Drake, Esq., one of the vice-presidents, and Messrs. Geo. Jackman & Sons. After the loyal toast the Chairman gave "The Woking and District Horticultural Association," drawing attention to the excellent work performed during the first year of its existence, having held two capital shows, one in the summer and one principally devoted to Chrysanthemums in November, whilst most interesting meetings had taken place on the third Thursday in each month, at which very instructive lectures had been given. In referring to this portion of the Association's work the Chairman wished to take the opportunity of publicly thanking the Surrey County Council for the valuable assistance they had rendered the executive in providing them at some of their meetings with such an admirable lecturer, whose visits were anxiously looked forward to by all the members, and to whom personally he also wanted to tender their heartiest thanks. The toast having been very heartily drunk, Mr. H. J. Bidwell proposed "The President of the Association," remarking on the good work Mr. Law had done to insure the success attained. The toast was received with musical honours, and appropriately responded to by the President.

— **THE "BOTANICAL MAGAZINE."**—The following are the subjects of the January number of the above-named periodical:—*Talauma Hodgsoni* (Magnoliaceæ).—This was discovered by Sir Joseph Hooker in 1848, at an elevation of some 6000 feet, in the Himalayas. Sir Joseph describes it as being one of the handsomest of the Magnolias. There is a specimen some twenty years old in the temperate house at Kew. The sepals are a deep purple without, and the petals cohere so as to resemble hen's eggs. *Acidanthera æquinoctialis* (Iridaceæ).—This genus of seventeen species is intermediate between those of the *Gladiolus* and *Ixia*. The corms were sent from Sierra Leone to Kew in 1893, where they have been successfully grown. The perianth-tube is white with six-pointed segments, and each marked with a purple line at the centre. *Lonicera Alberti* (Caprifoliaceæ).—This member of the *Xylosteum* section of the Honeysuckles was discovered by Dr. Albert Regel in Turkestan, who sent a specimen to Kew, where it flourishes as a hardy plant. It is very pretty, and has rose-coloured flowers. *Acacia spadicigera* (Leguminosæ).—This is one of the Horned Acacias, and is a native of Central America and Cuba. The Horned Acacias are mentioned as being grown at Hampton Court in the time of William and Mary, two centuries ago. The peculiar characteristic of the plant is its spinous, horny stipules like thorns. The most curious feature of the Horned Acacias is that these stipular thorns serve as the homes of a certain tribe of ants, which keep off other tribes of leaf-cutting ants which would otherwise make an end of the plants. *Cyrtopodium virescens* (Orchidaceæ).—This species was discovered at Lagoa Santa in Brazil. The flowers are about an inch broad, of a yellow colour splashed with dark red, and at their base are bracts some three-quarters of an inch in length speckled with red-brown.

— **TREES AND SHRUBS OF THE BOMBAY PRESIDENCY.**—Mr. W. A. Talbot, F.L.S., Deputy Conservator of Forests, has, says the "Kew Bulletin," compiled what he modestly entitles a systematic list of the trees and shrubs and woody climbers of the Bombay Presidency. Sind and North Kanara are included, and are referred to separately by name throughout the book. It is, however, very much more than a list, as it contains brief descriptions of the orders, genera, and species, together with references to Hooker's "Flora of British India," to Brandis's "Forest Flora," and to other important works. There are also keys to the orders, genera, and species. Of course, the real merits or defects of such a book are discovered by using it; but from a cursory examination it appears to have been prepared very carefully, and it is certainly singularly free from typographical errors. The arrangement, paper, and typography are good; and the book is certain to prove useful, and will probably promote the study of botany by forest officers. The author expresses a hope that it may form the framework of a future Forest Flora of the Bombay Presidency.

— **SWAINSONIAS IN AMERICA.**—The planting of *Swainsonia* for cut flowers in this country began, says the "Florists' Exchange," in Philadelphia, and is still more largely grown near that city than elsewhere. It is said that a florist of Germantown has a house 90 feet long by 16 wide, with centre and side benches, filled with these plants. These benches were filled with soil without any manure, and the plants put in about 18 inches apart last May. They are now about 3 feet high, very bushy, and covered with flowers. As *Swainsonia* has a habit of climbing, some method must be devised for keeping it dwarf. To bring this about the surface of the soil is not loosened, but allowed to become hard under constant watering. The plants thus treated are short-jointed, and they flower freely at every joint. The flowers are cut and put in water in a cool place ten or twelve hours before shipping, and they have been shipped 120 miles and were in good condition for use four days later. Single flowers sell at the prices of Carnations, and Mr. Cliffe's house contained 500 sprays for Christmas week. No manure water or any other feeding has been resorted to, as the plants seem to flower better in poor soil than otherwise.

— **PUBLIC PARKS AND GARDENS, PAST AND PRESENT.**—This was the title of a paper read before a recent meeting of the Exeter Gardeners' Improvement Society by Mr. F. W. Meyer. In the first part of his paper, so we learn from a local contemporary, Mr. Meyer gave an interesting history of celebrated gardens generally, showing the gradual development of the art of laying out beautiful grounds. He described the most ancient gardens on record—namely, those of the early Egyptians, the Persians, and the Chinese, and quoted extracts from the Greek writers Herodotus and Diodorus, dealing with the ancient hanging gardens of Babylon, which existed many years before the Christian era. The first public gardens in Europe were those of the Greeks, and the so-called "Akademy" gardens in the suburbs of Athens, with their "Philosopher's walks," the favourite haunts of Socrates, Plato, and their disciples were mentioned. Roman gardens were also described, and, after a brief reference to the mediæval period, the lecturer described the gardens of the Renaissance, and the subsequent Italian and French styles, giving as an example the enormous formal gardens at Versailles, with their miles of clipped trees and stupendous terraces and fountains, which, in spite of all their pomp and splendour, were so depressing and monotonous that even Louis XIV., who had them constructed, soon tired of their formality, and retreated to the more modest and secluded Trianon. Dealing next with modern gardens in the irregular style, Mr. Meyer said the present generation had learnt to appreciate the beauty of form in nature, and the modern landscape gardeners therefore tried their best to develop in their works a style of natural beauty, which could be practised successfully only by those who had closely studied the subject. The cradle of this natural style was China, and it was a remarkable fact that a country generally considered to be several centuries behind the times should in this respect be so far advanced. The first European country to adopt the natural style was England, and from there it spread all over the Continent. Public parks and gardens should be places of enjoyment where the people could breathe pure air, where they could find repose and recreation after their daily toil, and where among tasteful arrangements of plants and flowers they could learn to appreciate the beautiful in nature, and educate their taste and refinement by studying the effect and development of plant life, and acquire in addition a most useful knowledge of plants generally. Modern public gardens on the Continent were dealt with at some length, including the public park and Botanical Gardens at Brussels and Antwerp, the Bois de Boulogne in Paris, the

new public grounds at Zurich, the phenomenal glacier garden in Lucerne, the Theirgarten and Humboldshain in Berlin, all of which Mr. Meyer was able to speak from personal experience. With regard to public parks and gardens in England, the lecturer considered that in London Battersea Park was the best, while as an educational field Kew Gardens far surpassed all others.

— **FRUIT CULTURE IN NEW SOUTH WALES.**—This industry is receiving the attention its importance to the colony demands, and its most recent development is the formation of an experimental farm at Wagga Wagga, a town about 309 miles from Sydney and nearly equidistant from that city and Melbourne. The farm of which Mr. George Valder is Superintendent has an area of 75 acres, 45 acres being apportioned to fruit trees, 25 acres to Grape Vines, and 5 acres to agricultural experiments. About 3000 fruit trees and 4000 Vines have been planted during the past season. The collection, says a contemporary, comprises 600 different Apples, 450 Pears, 250 Plums, 200 Cherries, 100 Peaches, 120 Apricots, seventy Olives, fifty Figs, and eighty Nectarines. In addition there are Gooseberries, Raspberries, Loquats, Strawberries, Date Plums, Quinces, Almonds, Chestnuts, Walnuts, Guavas, Dates, Prunes, Mandarin and other Oranges, Lemons, Currants, and a few odd trees of other fruits. It is intended to plant one acre each of Prunes, Figs, Apricots, Raisins, and Currants for drying. The experimental farm is situate on the side of a high hill, from the top of which magnificent views are obtained of the surrounding country, and about four miles from the town of Wagga Wagga, and the climate of the district is colder than Sydney in winter and hotter in summer. The district is favourable to the cultivation of the majority of fruits grown in the colony, and the farm will be of much value to growers in indicating the varieties to plant and which to avoid.

— **A SCIENTIFIC DISCOVERY FROM JAPAN.**—A Japanese savant, Jokichi Takamine, who has studied at Glasgow and Tokio Universities, has, according to the "Times," discovered a novel method of preparing diastase and some other substances, of which we recently received specimens. He has been cultivating Eurotium Oryzæ, a mycelial plant of the Aspergillus family, on Wheat bran, and has found that at an early stage of its growth it bears upon its roots minute crystals of diastase, while the unripe spores contain a very powerful ferment. By washing the bran in percolators and crystallising the solution, he claims to be able to obtain diastase of considerable purity as a commercial product. Diastase is, of course, a familiar enough substance, though our chemical knowledge respecting it is at present far from complete. Its property, however, of transforming starch into sugars is made use of every day by brewers and distillers, whose object in performing the troublesome operation of malting is the production of diastase. But it has never hitherto been produced in such a form as the present. Takamine claims that a mixture of equal parts of this diastase (or "Taka-koji" as he calls it) and crude Wheat-bran, when added in the proportion of 10 per cent. to the quantity of grain mashed, will effect a more perfect conversion than the use of 10 per cent. of the best malt. The ferment is a very remarkable substance. It is said to be three times as powerful as yeast—that is, it will continue to produce fermentation in a sugar solution till there is 20 per cent. of alcohol present, whereas the action of ordinary yeast stops when the percentage of alcohol reaches 7. This one fungus, therefore, appears to produce in itself the converting agents required in two of the most important processes in the manufacture of beer and spirits. Besides this, the Wheat-bran, after two or three cultivations have been grown upon it, is said to form a good food for cattle, containing some 20 per cent. of protein, or flesh-forming substance.

— **VEGETABLES IN NEW YORK**—The supply of vegetables to the New York markets is, at the present time, says the "Garden and Forest," remarkably varied, comprising the ordinary autumn root crops, both home, Canadian, and European, as well as the more perishable green crops kept in cold storage, new vegetables from the Gulf States and from the Pacific coast, and choice hothouse products from adjoining States. The principal supplies of Potatoes in our markets now come from Long Island and interior sections of New York State, and from New Jersey, Maine and Michigan. Cargoes have recently arrived from Scotland, England, Germany and Belgium, and new Potatoes from Bermuda are already here. The best Sweet Potatoes come from Vine-land, and West India Yams, weighing from 5 to 8 lbs. apiece, are occasionally seen. These are cut in quantity to suit the purchaser, and sell for 15 cents a pound. Winter Turnips, from New Jersey and from Canada, are abundant and cheap, while small and tender hothouse Turnips cost 5 cents each. Carrots grown under glass may be had for

20 cents a dozen. Florida Cucumbers, small, and of irregular form, sell at the rate of four for 25 cents, the smooth and shapely hothouse product bringing 20 cents each. These have more than their appearance to account for the difference in price, since their crispness and delicate flavour is most marked. Tomatoes from the Southern States and from California cost 25 to 30 cents a pound, the firm flesh and rich colour of hothouse fruits making sales for them at 50 to 60 cents a pound. Small bunches of Asparagus from St. Louis are offered at 35 cents each, and slender stalks of the same vegetable from New Jersey greenhouses are luxuries which cost as much as 1.25 dollar for two dozen tips. New Okra, from Havana, costs 10 cents a dozen, Artichokes, from Louisiana, 25 cents each, and Florida Squashes, 10 cents. Other vegetables from Florida are Egg-plants, Brussels Sprouts, Leeks, Peas, string Beans, and Lettuce. Dandelion grown in cold frames on Long Island finds ready buyers at 20 cents a quart, and the best Mushrooms cost 1.25 dollar a pound.

THE "CHARLES COLLINS" FUND.

THE following (circular) appeal and list of subscriptions have been sent to us for publication:—

At a meeting of members of the Horticultural Press held at the Hotel Windsor, Victoria Street, S.W., on January 11th, the following resolution was unanimously passed:—

"In consideration of the services rendered to horticulture in his journalistic work by the late Charles Collins, of the high respect in which he was universally held, and of the fact that owing to the long-continued ill health of himself and his wife he was unable to make adequate provision for his family, who are in deep distress, a fund be opened for their benefit."

On the same occasion a General Committee, comprising a number of horticultural journalists, together with the following gentlemen who form the Executive Committee, were elected to carry the above resolution into effect—viz., Maxwell T. Masters M.D., F.R.S. (Chairman), 41, Wellington Street, Strand, W.C.; Brian Wynne, F.R.H.S. (Vice-Chairman), 1, Clement's Inn, Strand, W.C.; George Gordon, F.R.H.S. (Treasurer), Endsleigh, Priory Park, Kew; T. W. Sanders, F.R.H.S. (Hon. Secretary), 57, Cressingham Road, Lewisham, S.E.

For the information of those who are not fully acquainted with the facts of this sad case it may be briefly stated that the late Charles Collins was for some few years engaged on the Editorial staff of the "Journal of Horticulture," and prior to that filled similar positions on the "Gardeners' Chronicle" and "Amateur Gardening." He was returning on the evening of December 26th from a visit to some friends at Forest Gate, and just as he was about to enter the train was suddenly taken ill, and expired almost immediately. He leaves a widow and two little girls, aged three and four years respectively.

Mr. Collins, having only attained the age of thirty years, had been unable to make adequate provision for the support of his wife and family, and hence the Committee and Executive have resolved to make an earnest appeal to those who knew him to subscribe to the above fund, and thus enable them to alleviate in some measure the pressing needs of the widow and family.

Subscriptions may be sent to either of the gentlemen named above, or to the Editors of the various gardening journals. The amounts received will be duly acknowledged in the gardening Press.

LIST OF SUBSCRIPTIONS.

Dr. Masters ...	£3 3 0	H. J. Jones ...	£1 1 0
A. Dean ...	0 10 6	Mrs. H. J. Jones ...	1 1 0
G. W. Cummins ...	0 5 0	H. S. Wooderson ...	1 1 0
C. T. Druery ...	0 2 6	T. W. Sanders ...	1 1 0
A. Friend ...	1 0 0	R. Weller ...	0 10 0
G. Gordon ...	1 1 0	H. C. Prinsep ...	0 5 0
W. P. Wright ...	3 3 0	D. B. Crane ...	0 5 0
E. Molyneux ...	1 0 0	A. Rendle ...	0 2 6
S. Mortimer ...	0 10 0	H. Stevenson ...	0 2 6
C. H. Curtis ...	0 10 6	H. Shoesmith ...	0 5 0
Rev. D'Ombra ...	0 10 6	Ladywell Horticultural	
C. E. Shea ...	1 1 0	Society ...	0 13 6
R. P. Brotherston ...	0 5 0	H. A. Smith ...	0 2 6
H. Richards ...	0 10 6	W. Dipper ...	0 2 6
W. H. Divers ...	0 5 0	J. Norton ...	0 2 6
W. Wells ...	0 10 0	Mrs. J. Norton ...	0 2 6
Dobbie & Co. ...	0 10 6	C. E. Diggle ...	0 2 6
T. Humphreys ...	0 5 0	G. W. Comfort ...	0 2 6
J. W. Moorman ...	0 5 0	Mrs. G. W. Comfort ...	0 2 6
J. P. Kendall ...	0 2 6	E. D. Smith ...	0 5 0
A. Gardener ...	0 1 0	J. Mallendar ...	0 5 0
W. Iceton ...	0 5 0	E. K., Dublin ...	0 10 0
Proprietors of "Amateur		Brian Wynne ...	1 1 0
Gardening" ...	1 1 0	G. Trinder ...	0 2 6
J. Laing & Sons ...	1 1 0		

[The "Journal of Horticulture" having been the means of enabling immediate wants being met during a sad and sorrowful time, warmly appreciates this effort on the part of press associates on behalf of the widow and children of a lamented coadjutor and estimable man. We shall be glad to forward any further sums that may reach us to the treasurer of the fund.]

A WOMAN'S THOUGHTS ON WOMAN'S WORK.

It has often been a puzzle to me to see how little practical interest leisured women take in their gardens. True, they are fond of planning and of giving impossible orders, but when it comes to real work they are nowhere. There is a great tendency among women to prefer the house and household pursuits, and this is all very well in its way and very necessary too, but if only women would believe they have lungs which must materially benefit by fresh air, and muscles which would strengthen by use, we should see more of them abroad.

There is in this case no need of smart garments or useless "dressing up," which must be gone through for a walk in frequented neighbourhoods or for the making of a round of calls; also, odd minutes may be utilised, and at first this is the better plan, till the body becomes accustomed to the change of exercise. In this climate a pair of really strong boots are a necessity, a short skirt desirable, and a shady hat. To everything there is a beginning, but to the woman who means work a failure is only an incentive to greater care and diligence. In some cases they may have someone who will direct their first efforts, but as a rule a gardener dislikes a woman "messing" about. Some small flower gardens may be entirely managed by a woman; even grass cutting is made easy. An old lady friend, now too stiff for the machine, gets her strong, willing "general" to take that part of the work.

The paths come first, and no one can go far wrong in the weeding of them—only be true, and go to the root of the matter. No chopping weeds off by the head. It is so satisfactory to get a really big weed uprooted; to see its great fangs, and the hole it has left, that seems something done, and really as work nothing repays the willing novice much better. As the state of the doorstep is said to indicate the state of the house so the paths do that of the garden. In some places not only is gravel dear but bad to meet with. Cherish what you have, keep it well raked up towards the centre. You must have a good water shed, and then you have always a dry promenade whatever the weather may be. If you have Box edgings there is another outlet for energy; untrimmed, broken borderings look very bad, and has an old-fashioned formality about it. Nothing comes in more useful as a foundation for wreaths and crosses when other materials are not to be had. Beds have always a tendency to sink. My adviser says I have my beds too high; let that be as it will, they look better than my neighbour's, whose sometimes sink level with the border. It is a matter of taste what the beds are to be filled with, but it is not a matter of taste that the edges be kept neat. It is tedious to go down on your knees, and clip, clip, clip, but it is satisfactory in the end.

Then bear in mind if you give nothing you have nothing. Town people are perforce obliged to depend on that evil-smelling stuff in bags obtainable from your florist; you country people if possessors of hens, pigs, or pigeons, are rich beyond dreams of avarice. If without offence to your neighbour you can get some sheep droppings or cow manure do so. After a long dull winter one looks forward with such pleasure to the simplest spring flowers, and it seems a pity they should not be found in all gardens. Aconites do so well even under big trees, Snowdrops spring up everywhere, except on the strongest clay. A bed of seedling Polyanthus is delightful. These planted in autumn need no further care till they have flowered, been divided, replanted in a cool situation to await a second autumn. If you are of a generous disposition others will participate in your belongings, and you will have plenty to give and to spare. No spring garden is complete without Wallflowers, but see that the plants are short and sturdy. "Planting out" is an art. Visit some good garden, and use your eyes and observe the neat deft way in which the operation is carried out. A handy man will often pick up the knack directly, and so should a woman.

Pruning, too, is quite a woman's work, provided her heart is hard. A well-pruned Rose garden looks such a wilderness in March, as wheelbarrow after wheelbarrow of Rose wood goes away. No rule can be laid down for this work, practical observation is the only recipe and knowledge of the habit of the variety. Amateurs usually fail by doing too little, and leaving too much badly ripened wood and weak growths crowded together. A friend unused to Rose growing prayed her husband just to spare her one bed so that she might have a few early blooms. He was a silent man; smiled, and did her bidding. She got her early blooms, but oh! such frost-injured, insect-mangled specimens that she could not bear to look at them. Next year she used a sharp knife fearlessly, and then had "glorious Roses."

Pricking out requires careful fingers, careful preparation of soil, careful watering afterwards. A fidgety sick man bothering about his seedling Primulas, his wife suggested her assistance. It was

grudgingly received, and with special instructions she began her work. "Just see that the pan is moist enough for the plants to come out easily with little balls of earth." "Fill the pots (don't forget the crocks) with one part soil from which the turf has been removed, one part decayed leaf mould, one part that stuff in a bag we got from Primrose Hill. Mix it well and let me see it first. When repotted water from the bottom, and perhaps you had better bring one or two up for me to look at." "Yes, they will do," and they have done. That lesson was worth heaps of book learning.

A garden is not prized so much by a real lover for the actual money value of the plants as from the associations. A root of crimson Anemone, from the old garden at home; a yellow Crown Imperial, from a neighbour; a bit of Bergamot, because prized in a story book; Clove Pinks, the gift of an old servant; Mrs. Sinkin, from "Madam" at the Hall; Daffydownillies, from Sherwood Forest; Ferns and Wordsworth Poppies from the home of the Lake poets. All these, and a thousand others, go to make up the charm of one's own garden. The foot of a garden wall adjoining the public road was always an eyesore and continual source of irritation from the weeds that infested it. They were difficult to uproot on account of the stony foundation. A happy thought struck the owner. Why not overcome the strong man with a stronger? Get out as much weed as possible, then plant with the little frail and graceful Wordsworth Poppy, make a fringe of bright yellow and pale green. Once get that well established, and weeds may be defied. Then there is the care of the grass. A lawn infested with Plantain will always provide occupation. It is not a bad plan to drop a few grass seeds into the hole left by the removal of the root. Do not leave a fang if you can help it. Dandelions, too, may provide wholesome exercise, and the weeding of the Asparagus bed has dispelled ennui many a time. Often, too, there are creepers to train and tie, seeds to gather, dead Roses to remove, and always the earth's heritage of weeds.

In the days of long ago, when Gloire de Dijon and "Général Jacqueminot" reigned supreme, the most charming garden and most redolent of sweet flowers was entirely managed by its mistress, and filled with standards of her own budding and flowers of her own raising. She had nothing but an old-fashioned frame or pit, but she did wonders. Her Christmas Roses and her summer Roses were the surprise of the neighbourhood, and her herbaceous border was a glory. From her many imbibed their first love of gardening. She had a wonderful charm for children, and gathered her young nieces and friends, who were only nieces by courtesy, and made them, whether they would or not, love the country and take interest and delight in their garden work. She has moved to a town, but you need only know the name of the terrace; the house reveals itself.

A word as to garden visitors (female). You have all in trim—your best blooms in their glory—your lawn like velvet, and you, in a moment of weakness, ask your friends. Before they have been in ten minutes you are provoked beyond endurance. "How sweetly pretty! How lovely! Oh, where did you get that?" and then in the same breath, "Were you at the dance last night? Did you hear of So-and-so's engagement?" You show them a grand "Cleopatra." They say they prefer W. A. Richardson. You point out a "Victor Hugo," but they retort that for size give them Magna Charta or Paul Neyron. Such folk are incurable, and must be answered according to their folly.

In a village where the working people are born gardeners much pleasure is given and received by interchange of visits. There is always something to learn, and little gifts of plants and cuttings do more to cement real friendship than anything I know. A garden is common ground, and how our feet linger! Well, it is only nature. We are all sons of Adam, though some of us "favour" our father more than others. A garden gives an outlet for individual taste. A little eccentricity is always pleasing, and much Derbyshire spar. No two gardens will bear exactly the same treatment, soils, situation, and so many factors are at work. A few experiments tried at first will soon prove what is the most desirable kind of garden "stock." With a western exposure you must not look for glowing Rose beds, nor on strong clay will bulbs do well. Of course in the confines of a garden much may be done in the way of making soil, but there are often natural impediments that cannot be overcome.

Those who have children, teach them the proper use of a garden. If they see you respect your plants and treat them lovingly they will do the same; children are the grandest imitators. I cannot remember how young some children were when they borrowed their father's exhibition boxes and had flower shows of their own, and were cruelly critical about their father's productions. These children were never shut out of the garden for fear of the damage they might do. It never occurred to them to injure what their parents loved, and I am sure the eldest boy knew sooner than any-

one of the birth of a new bloom, and would tell the points of a Rose as well as many an old judge.

Just one word in conclusion. In all the work clear up after yourself. Nothing is so aggravating to the powers that be than litter left after "Missus" has been gardening; it would not tire you much more, and then there is such a sense of "finish." Tools, too, have a place, and they are easier to find when next wanted, if only put away carefully. An old friend who complained that sermon writing made his back ache, never complained after the hardest day's gardening, and he did put some work into that; and I fancy my lady readers, if they try the experiment, will find that outdoor exercise and work will do more to take "backache"

Rhododendrons, and should become very popular. It was exhibited by Messrs. J. Veitch & Sons, Chelsea, at the Drill Hall, Westminster, in April last, when it was deservedly accorded a first-class certificate.

APPEAL JUDGES.

ALLOW me to thank "Shooter" (page 56) for the kind assistance he has given me in ventilating a subject in which I have taken a very deep interest for some time, but I cannot agree with his suggestion to allow an appellant to ask that a class be rejudged by another judge because it might lead to many appeals. A number of competitors in any class where the competition was very close might put forward an appellant on



FIG. 16.—RHODODENDRON PRINCESS WILLIAM OF WURTEMBERG.

out of their mental worries than any other remedy that can be suggested. "Watch and pray" is the apostolic admonition; Work and weed, is mine.—H. G. F.

RHODODENDRON PRINCESS WILLIAM OF WURTEMBERG.

ONE of the finest of the spotted Rhododendrons is that depicted in the illustration (fig. 16). The variety, which belongs to the ponticum section, is of very robust habit and remarkably free flowering. The trusses, comprising upwards of a dozen blooms each, are very compact. The flowers are about 2 inches across, creamy white in colour, charmingly tinted rose-pink on the lower segments, while the upper are spotted with crimson. It is a splendid addition to our hardy

the mere chance of getting their exhibits advanced a point. "A. D." (page 78) appears indignant by the supposed inference that judges are not always what they should be. He entirely overlooks the gist of my letter. There is no such proposal in it; all that was suggested was the appointment of appeal judges by our show-promoting societies, and to allow competitors who might have reasons to believe that their exhibits have been overlooked to appeal to the judgment of the gentlemen appointed for the purpose. There is nothing novel in the proposal; the system is in operation in our law courts, and although "A. D." clearly shows us how ridiculous it is having so many courts reversing and reversing one another's decisions, he does not say what he would put in place of this very stupid arrangement, and we can only infer that it would be a single tribunal. "A. D." then, on his own showing, is bound to admit that my idea of an appeal court for horticultural shows is not quite so ridiculous as that bewildering labyrinth of endless appeals to which he refers.

If some society would try the experiment I think it would be

neither found impracticable nor impossible. If one good all-round man, with a wide experience in judging such as "A. D." has had, were appointed appeal judge, given a comfortable room convenient to the exhibition, with the daily papers on the table before him and a choice of teetotal drinks, he could pass a pleasant hour or two, and the dread of his appellate jurisdiction would make the judges so careful that he would very often have a maiden court. Not even a grumble would be heard, and instead of having his decisions supervised by other judges he himself would be the head of all. Would this not be worth his fighting for?—C. K., *Gargunnoch*.



NATIONAL ROSE SOCIETY.—THE TROPHY CLASSES.

NEITHER your correspondent, "J. B.," or others who have taken up this subject, seem to be aware how their wishes have been more than anticipated by the Committee. At the November meeting two resolutions were brought forward on this subject, one that the winner of the amateurs' trophy should become a Vice-President for the year, and the other, that a large gold medal, the same size as the silver medal, should be substituted for the money prize. The cost of this will be £7 10s., and its intrinsic value, I suppose, about £6. Possibly this may be extended, as I think it ought to be, to the amateur jubilee class also. The nurserymen present at the meeting who had been winners of the trophy in their own class thought it ought not to be extended to them, and the Committee decided on confining it to the amateurs.—D., *Deal*.

THE QUEEN'S ENGLISH.

HAVING had occasion to write to Mr. Foster-Melliar on the subject of his book I have received from him a reply in which I find the following slight reference to the little critique of a correspondent on page 75:—" 'Arcanum' is right in his criticisms of my English; but what of 'may be excused making it,' and 'way of producing such' in his own communication? I had rather not discuss my own book in print."

Of course, as Mr. Foster-Melliar knows, I did not request him to do so, and hope he will not object to the small citation from his letter. The best of writers make occasional "slips" in the Queen's English, which they know so well.—A READER.

ROSA RUGOSA.

I CAN fully endorse all "A. C." (page 76) says in praise of these Roses, for surely we have no flowering shrub of more constant beauty. The deep green leafage, remarkable freedom from insect enemies, a constant show of bloom through the whole summer and autumn, and, by no means the least, a crop of particularly showy hips. But when your correspondent claims for Mr. Martin seeming priority in the attempt to improve these I cannot quite follow him. Monsieur Bruant of Poitiers is doing considerable work in this direction, and has been for some time. In 1887 Monsieur Bruant gave us that beautiful semi-double hybrid named Madame Georges Bruant. I understand this to be a cross between Rosa rugosa and Sombreuil, and the plant, bloom, and whole habit seem to confirm this. It is one of the first to bloom and the last to cease. I have used the white rugosa and this semi-double form very frequently in large wreaths and crosses. Nothing works up better, as the beautiful foliage is so well in keeping, and the pointed buds retain their shape and boldness for a long time. Within the past few days I have had a letter from M. Bruant, and also plants of his two new rugosas of this spring. Several good hybrid rugosas are now on the market, notably those from the raiser named, Cochet and Dr. E. Kaufmann.

I have grown a few seedlings of rugosa alba and rubra for a long time, and find they vary considerably; so much so that few will purchase seedling plants in preference to those worked from a good type of either variety. We might do worse than grow a few of these in pots on a north border, then house them with our Chrysanthemums and so secure a lasting show of Christmas foliage, a few blooms and many berries up to and beyond Christmas. That they are capable of this I know from experience. Nor can we possibly find a Rose more suited to town and suburban gardens, seeming entirely unaffected by fogs and smoke, while all soils appear congenial. I hope to visit Reading with the N.R.S. and shall certainly look out for Mr. Martin's hybrids. I may say that I, also, have found hybrids longer in flowering than naturally crossed hips.—PRACTICE.

BURR-KNOT APPLE.

THIS is a very useful, free-bearing, culinary Apple, in use during October and November. It is also called "Bide's Walking-stick." The following description is taken from Dr. Hogg's "Fruit Manual," fourth edition. "Fruit round; skin shining of a clear lemon-yellow colour with a blush of red on the side next the sun; eye closed; stalk half an inch long; flesh white, tender, juicy, and of an agreeable acid flavour. The tree is a close and compact grower, and a profusion of burrs are

produced on the branches which emit incipient roots. If a branch furnished with these burrs is inserted in the ground it will take root and become a tree." The name of Bide's Walking-stick originated from a person of that name having cut a branch for a walking-stick in Cheshire, and brought it to his place near Hertford, and inserting it in the ground it took root and became a tree.

There are a number of trees of this variety in the gardens here, and it is also to be found in some of the cottage gardens in the neighbourhood, several of which trees I have been informed have been grown from cuttings. My first knowledge of it was on taking charge of these gardens four years ago. Every year all the trees, some of which are very small, have produced good crops of fruit, and though last year was a bad Apple year, and most varieties were badly infested with insect pests and made but little growth, all my Burr-knot trees fruited well, and also made good clean growth.

This, I believe, is quite a local Apple, or at any rate a north of England Apple. I have looked through the catalogues of several of our fruit tree growers and books on fruit culture, but do not find it mentioned in any of these. A few weeks ago one of our greatest authorities on fruit culture told me he had known this Apple for fifty years, but had never seen it in the south of England, and a reader of the *Journal of Horticulture* has procured trees from several different nurserymen under the above name, but in no case did he obtain the true variety. My reason for penning these notes is to gain information, and I shall be glad if any correspondents of the *Journal* can tell me when this Apple was raised and who was the raiser.—J. S. UPEX, *WigganThorpe*.

THE HISTORY OF THE VIOLA.

IN the *Journal* I have on two or three occasions referred somewhat fully to the introduction into notice of the Viola cornuta by Mr. John Willis, and of the work followed by others, but as the Viola has now become so very popular both as an outdoor decorative plant and at our exhibitions, I feel that a more complete history would be of much interest to those interested in the cultivation of this plant.

The honour of being the first person to hybridise the various species of Viola belongs to Mr. James Grieve, the manager of Messrs. Dicksons and Co., Pilrig Park Nurseries, Edinburgh, who in the year 1861 collected plants of Viola lutea on the Pentland Hills, and V. amœna from Moffatdale, and went to work hybridising and raising seedlings, using the pollen of various Pansies. From Viola lutea he obtained Dicksons' Golden Gem, Grievei, and others of that type. V. amœna was the parent of all the Blue Bell type, and V. stricta of all the rayless type of the earlier period of the Viola. Mr. Grieve having raised rayless varieties for twenty years writes, "Of late years size has been the first point aimed at by so many, which is an error."

The credit, however, of first bringing the Viola into notice as a bedding plant must be given to Mr. John Willis, who, in 1862, was gardener to Sir Philip de Grey Egerton, Bart. When in London the same year he saw half a dozen plants in bloom of Viola cornuta, and tried to buy them, ultimately purchasing three of the plants. This was in the summer, and by propagation he obtained a large stock. In 1864 Mr. Willis obtained plants of Viola lutea for the purpose of testing it as a spring decorative plant, using it extensively at Huntroyde Park, Burnley, whilst gardener there. This fine old species produced Lutea grandiflora or Lutea major, a variety still grown, and of which I saw a grand bed in the Birmingham Botanical Gardens during the past year.

It was about the year 1870 that Mr. Grieve went thoroughly into the work of hybridising Violas and raising seedlings, using Violas lutea, stricta, montana, cornuta, and others. His earliest seedlings were Vanguard, Celestial, Polly, Oculata, The Fairy, Lutea major, Golden Gem, Grievei, and Pallida. Finding a great demand for Violas, he worked assiduously, and in 1872 twelve of his new varieties were figured in the "Floral Magazine" for that year—viz., Eyebright, White Perfection, Canary, Advancer, In Memoriam, Regina, Dickson's King, Snowflake, Tory, Favourite, Claret, and Scotia. Of these Tory and Snowflake are still frequently to be met with in gardens. In the same year the firm exhibited at the Crystal Palace a collection of 100 varieties of seedlings and others, chiefly their own raising. Like the Fancy Pansy when I introduced it, our Scottish florists at that time gave the cold shoulder to the Viola, and when the firm exhibited collections as they did at the Edinburgh shows, "Here comes Grieve with his weeds," was the common salute he received.

Other growers also began to take up the Viola, for in 1870 Mr. B. S. Williams, of Holloway, sent out Viola Perfection, followed by Sensation and Admiration, varieties raised at Rotherfield Park Gardens, in Hampshire. In 1872 Mr. R. Dean, of Ealing, introduced Blue Bell, which soon became a very popular variety. Some little time after he sent out Corisande, Lothair, and Princess of Teck, raised in his seed grounds at Bedford. Some Tom Thumb varieties of Violas or miniature Pansies were raised there from seed, having a very compact dwarf growth and small flowers, resembling the Violetta section of the present day, but florists did not seem to care for them.

In 1874 Messrs. Dicksons & Co. sent out Sovereign and Alpha, and in their catalogue of that year twenty-five varieties of Violas are named. In 1875 Mr. R. Dean sent out Crown Jewel, Royal Blue, Lilacina, Mulberry, and White Swan, Mr. B. S. Williams introducing a good white variety Mrs. Gray, raised at Eglinton Castle Gardens. About the year 1878 the writer of these notes raised True Blue, and subsequently other sorts such as Queen of Lilacs, Golden Queen of

Spring, followed later on by Mrs. Charles Turner, Sir Joseph Terry, Golden Gem, Bridesmaid, Master of Arts, and others.

It is not my intention to trace the "sendings out" of every year, but just to refer to some of the leading raisers and introducers of new varieties. In a catalogue of Messrs. Dicksons & Co. for 1880 now before me seven new varieties of their own raising are then being introduced. Year after year they have gone on, and in their catalogue for 1894 and 1895 four new sorts are introduced, and nearly fifty varieties of their own raising, including Bullion, a very fine yellow; Acme, a rich rosy purple; Dorothy Tennant, H. M. Stanley, two fine varieties, and Mary Gilbert, a fine yellow, are to be found.

In their 1880 catalogue Mr. Grieve laid down the following "qualities that go to constitute a good bedding Viola"—viz.,

1, A dwarf dense habit of growth, with the flowers thrown well above the foliage.

2, That they bloom freely and continuously either during the spring and summer, or during the summer and autumn.

3, That the flowers be of good size, but especially of good texture, in order that they may bear well extremes of drought or wet.

4, The most desirable shades of colour are those that are clear and well defined, so that they may come out well at a distance. Mixed or fancy colours, though they may be dotted individually in a miscellaneous border, are worthless for massing.

I think it will be freely admitted that the necessary qualities of the Viola in 1880 hold good now.

Messrs. Dobbie & Co., Rothesay, must also be closely identified with the progress of the Viola, especially since Mr. William Cuthbertson took this plant in hand about ten years since. The firm has on many occasions, in London and elsewhere, exhibited superb displays of Violas arranged in artistic style. They introduced in 1888 Mr. John Baxter's superb collection, which included Spotted Gem, Ethel Baxter, York and Lancaster, and Mrs. Baxter, and subsequently such fine varieties as Duchess of Fife, Ravenswood, Gipsy Queen, Ada Adair, Blue Cloud, and others. Messrs. Dobbie & Co. have also sent out new varieties raised by Mr. J. D. Stuart of Belfast, Dr. Dickson, Mr. Biggar, Mr. George McLeod of London, Capt. King of Lennoxton, and others. Amongst sorts of their own raising which have taken a high position are Lemon Queen, Iona, and Edina, three very first-class varieties; also Mrs. Bellamy, Minnie, Duchess of Rothesay, and others.

Dr. Stuart of Chirnside, N.B., claims notice as a successful hybridiser and raiser, especially of the Violetta or Miniaturum type. He is also the raiser of "Sylvia," a rayless white large-flowered variety which has become popular. I wrote to Dr. Stuart recently asking for full information as to his commencement with the Viola, and in a letter just received from him he writes: "I send you a few facts relative to the origin of the rayless strain of Violas." (It seems evident that Dr. Stuart was unaware of Mr. Grieve's work in the same direction previously, as already recorded.) He adds, "In 1872 I crossed *V. cornuta* with the Imperial Blue Pansy and twelve seedling plants resulted, identical in habit, and of a blue colour, still distinct from any other yet raised. I then crossed these flowers with the pollen of various coloured Pansies, and a considerable quantity of seed was saved. The plants raised from this flowered the following season, and exhibited a great variety of colours, all showing the *V. cornuta* keel or horn, proving their parentage, but they still resembled the Pansy more than I wished. I then determined to take the pollen from these hybrids and carefully crossed the *V. cornuta*. I was, however, disappointed with the result, for very few of the crosses took, and where the seed pod did swell the seed failed to vegetate. This is exactly what we may expect from in-and-in breeding, and I had only two plants from this cross, carefully saving seed from them when they flowered. The first to bloom was like *V. cornuta* in habit, with a fibrous tufted root habit, not in the least like a Pansy, the flowers being like *V. cornuta*, but three times the size and equally floriferous. In 1875 all raisers of Violas were invited by the Royal Horticultural Society of London to send plants for trial at Chiswick, and the chief growers responded. I sent up six plants each of the following seedlings:—Lady Susan Suttie, Hillside Beauty, Georgia, Ormiston, Dr. Stuart, and William. At the blooming time Mr. Barron wrote to know how I had procured the cross, as they flowered more continuously than most of the varieties under trial. The Floral Committee of the R.H.S. awarded a first-class certificate for each variety. Plants of these were afterwards distributed, renamed, and sent out from another source.

"In those days Violas were not rayless, and I endeavoured to get a good white self without rays, but some years elapsed before I succeeded. In the year 1887 my attention was attracted by a pure white variety, which I named 'Violetta,' remarkable for its dwarf habit, floriferousness, perfume, and for its small, well-formed flowers. 'Violetta' has been the mother of many other good varieties, and with pollen from Violetta the beautiful rayless white variety 'Sylvia' was raised."

Still it must not be forgotten that before we had Sylvia we possessed a grand old rayless white, the "Countess of Hopetoun," which will take some beating as an all-round Al white bedding Viola. Dr. Stuart has been a most successful raiser in such as Blue Gown, Gold Crest, Old Gold, Ophir, Marginata, Summer Cloud, Sweet Lavender, and others. Blue Gown is destined to be a very popular bedding variety, and Mr. Grieve, in one of his letters to me, writes, "Sylvia is a grand variety of the real type of a bedding Viola."

Other growers in Scotland also raised seedling Violas, amongst them the late Mr. John Downie, who sent out about six years since amongst others The Mearns and Lady Amory, two fine varieties, and more

recently Mr. Andrew Irvine of Tighnabruaich has formed an extensive collection, and is raising seedlings, and has already sent out such good sorts as Lady Borthwick, Miss Alexander, Wm. Dean, Duke of Clarence, Maggie Todd, and others. Mr. J. Smellie, florist, Glasgow, obtained a certificate at the recent Viola Conference for a seedling Lizzie Thornley, and Messrs. Dobbie & Co., Rothesay, obtained one for a charming yellow named "Gem," and Capt. King of Lennoxton was awarded certificates for two fine seedlings, "Mrs. Palmer," and "Verona." Mr. Frater, Messrs. Paul & Co., Bridge of Weir, Mr. D. Fergusson, Mr. Hamilton, and others are also raisers of new varieties.

Ireland is also furnishing a good contingent of raisers in Mr. J. D. Stuart and Mr. Samuel McKee, both of Belfast. The former has been the more successful as a raiser, and has sent out, through others, such fine sorts as Golden Flake, Laverack, H. W. Stuart, Blne Garter, Carissima, Erin, Diva, Hibernia, Mary Stuart, Acushla, Colleen Bawn, Charm, and others. Mr. McKee grows a much lesser number of plants, but has already raised such fine sorts as Reliance, Comet, Magnet, Duchess, Countess, Mars, and others, and was also awarded a certificate at the Viola Conference for Charmer, a lovely variety. Mr. George Steel, Etal, Cornhill-on-Tweed, is now devoting his attention very much to the Violetta or miniature section, and has some fine varieties yet to be sent out, most of which I have seen. Amongst varieties he has already introduced are Mrs. Joseph Oliver, Maggie Steel, Mrs. George Finlay, Mrs. Stevens, and others.

Mr. Septimus Pye of Catterall is also earnest in Viola work, and the introducer of many new varieties raised by himself, Mr. J. D. Stuart, and others.

Several amateur florists in the neighbourhood of London are also raisers, Mr. George McLeod of Chingford being one of the first to take the Viola in hand close to London, and obtained at the Viola Conference a certificate for a seedling pink-tinted variety named Rose Queen, as well as having previously raised other varieties. Mr. A. J. Rowberry, Woodford, near London, also obtained a certificate at the Conference for a beautiful almost blue miniature variety named Olivetta, really a gem, and Mr. D. B. Crane, Highgate, London, also obtained a certificate for Ethel Hancock, a charming white of the Sylvia type.

Much more could be written on the Viola, but I must now draw these remarks to a close. I rejoice in its popularity, and in the certainty of its being universally used in gardens for a number of years until superseded by some other plant, but that time is yet far distant.—WILLIAM DEAN.

THE LATE MR. WILLIAM THOMSON.

IT would be with a sad sense of a great personal loss that many of your readers looked on the portrait given in your issue of the 17th inst. of the practical horticulturist and good man, whose noble qualities of mind and heart had justly endeared him to a wide circle of friends not exclusively confined to horticulture, and many pleasant hours would again be brought to mind of time spent in his company listening to some practical advice, or enjoying some of his pleasant reminiscences of which his mind seemed to be a veritable storehouse.

Who that has been present at some of our horticultural functions when he has presided that has not felt proud of having such a grand old man as chairman, and have gone away from the meeting instinctively feeling better men, and with a higher sense of the duties and responsibilities of his calling after listening to a speech on some gardening subject from him? and who, again, that has been privileged to spend a day at Clovenfords has not been struck with the masterly mind that has been at work in all the detailed arrangements of the place? The marvellous crops of Grapes taken off the Vines there for years in succession might entitle Clovenfords to be called the home of Gros Colman and Lady Downe's Grapes for market purposes. Perhaps one of the finest houses of "Duke's" to be seen was growing here a few years ago, pruned on the long spur system. The writer was told by the late Mr. Wm. Thomson the roots had a free run of the natural soil outside (which is very poor), the only attention given being an occasional dressing of their Vine manure.

But the most interesting feature of all to visitors at Clovenfords was found in the personality of Mr. Thomson himself, the charm of whose manner and gentlemanly bearing made old and young alike welcome, and he was ever ready to give advice and encouragement to both; especially was this so with the young, whose welfare he had thoroughly at heart, and perhaps in his day did more than any other man in seeking to improve the position and raising the standard of young gardeners.

For one, I hope that in any attempt which may in the future be made to raise a fund for the perpetuation of Mr. Thomson's memory, that this admirable trait in his noble and many-sided character will be kept well in view.—N. F. BARNES, *Eaton*.

A REMINISCENCE.

IT was with sorrow that I read of the death of Mr. William Thomson. It was rather singular that a discussion should be going on in the *Journal of Horticulture* over his favourite subject just at that time. I once had the pleasure of a shake of his hand when on a visit to Clovenfords, although the name of this famous pioneer in Grape-growing was familiarly known to me long ago. My young days were spent close to the scene of his early triumphs, almost in touch with that lasting monument of his old friend, the late Mr. Peter Kay, that fine example of extension Vine training at Finchley.

Then there was Mr. David Thomson, now of Drumlanrig, who lived at Dyrham Park, near Barnet, about the same period his brother was at Wrotham. I believe at that time, amongst other good things, Strawberries in pots and Pelargoniums were particularly well grown at Dyrham. In close proximity to the latter place about this time lived Mr. Thrower at High Canons, another excellent Grape grower. I have heard it remarked of him that once he had a foreman who stripped the Vines of their bark, and so annoyed was Mr. Thrower that he made him tie it on again. The late Mr. John Davis of Oak Hill, East Barnet, another grand Grape grower, was well known to me in my youth. I can picture Oak Hill as I write here, which I could see daily from my father's doorstep. My father was at that time foreman to the late Mr. William Davis, at the Whetstone Nurseries, now owned by Mr. Sweet.

Another notable man who used to visit there was Mr. Forsyth; he, too, has left his mark concerning Grapes in his table of the temperatures of the early vineries at Oak Hill, as detailed in the "Gardeners' Assistant." Both he and William Davis served together at Oak Hill under the elder brother of the latter. I have heard how Grapes from there in those days were carried to London on the head of one Harry Mills, who was afterwards many years sexton at Whetstone Church. I think he is gone too. In the same radius, somewhere about that period, lived also another noted fruit grower in the person of the late Mr. Tillyard, who then lived at Stanmore Priory, Middlesex.

I heard much in my earlier days of the work of these good men, and I must have caught on that enthusiasm for Grape-growing that has never left me. The fine Lady Downe's grown at Whetstone some years ago I shall ever recollect. Many a time have I carried them on my head from King's Cross to the West End, when they were worth something like 20s. per lb. Things are different now. Then almost adjoining Oak Hill at one time lived Mr. Thos. Baines, growing his grand specimen plants. Now, only a short distance from there we have Mr. W. H. Lees of Trent Park Gardens making fame with Chrysanthemums.—J. J. CRAVEN.

I WOULD like to thank many members of the horticultural community for their kind sympathy in our recent sore bereavement. My sisters and myself have been much comforted by the many kind letters received from all quarters. We shall not, I fear, be able to answer them all personally, and therefore I hope those who do not receive a direct reply will accept this public acknowledgment of their kindness.—JOHN THOMSON, *Clovenfords, N.B.*

SEASONABLE NOTES.

IN these days of keen competition it behoves everyone who would advance with the times to be on the alert to embrace every favourable opportunity which presents itself that will in any way supply additional knowledge or assist them in the race and struggle of life. With the advent of the New Year the various duties of a gardener commence. The trade catalogues remind us that it is high time that we began to prepare our lists for another season, and in making up our seed lists year after year I think we are apt to adhere too closely to the old order of things instead of exchanging some of the varieties of the past and supplementing them with those of more recent date.

These remarks are not so much intended for vegetable as flower seeds, for of course where a fair trial has been given, and the most suitable varieties of the former have been selected, I should say by all means do not despise a good thing till you have found a better; but in the case of flowers I think a great deal more interest would be evinced if we were to diverge somewhat from the beaten track. Of the old-fashioned flowers what can be more beautiful during the summer evenings than the Night-scented Stock (*Matthiola bicornis*), filling the air with its delicious perfume? The *Hesperis* or *Rockets* are good plants, and although they are getting a little more popular, they are not nearly so often met with as their merits deserve. They are equal in every way to the Stock, blooming twice as long, and are perfectly hardy. For supplying cut flowers they are excellent. *Nemophila insignis* is one of the most charming of our garden flowers, attaining a height of about 6 inches it is suitable for edging or bordering purposes.

Another subject which I think needs our attention is in reference to the tool shed. How often do we see tools laying about, some in one place and some in another; and though this state of things shows a state of carelessness on the part of the men, it also shows loose management on the part of the head gardener. I remember during my early days the rigorous accuracy exercised by one head gardener in this matter. The plan adopted by him was as follows:—Each man on his entry into the garden was presented with a set of tools necessary, and was also given space in the tool shed to keep them in. No man was allowed to use another's tools. In addition to the ordinary garden tools each man was presented with a good pruning knife every two years or thereabouts.

A matter too often overlooked was also strictly enforced—thoroughly cleaning the boots before coming off the garden on to the walks. This is a very important matter, the neglect of which not only tends to the production of weeds, but also causes the walks to present a dirty and untidy appearance. On each quarter of the garden was placed a scraper and a partly worn-out broom. Five minutes were allowed at leaving time for thoroughly cleaning boots and tools, and for placing the latter in their respective places in the tool shed. In short the motto, "A place for everything, and everything in its place," which was hung up in the most conspicuous place in the shed, was always carried out,

with the result that no time was lost in looking up the tools, as is the case in so many gardens.

At this season of the year many changes are usually taking place, and it is for the benefit of those who are relinquishing the duties of foreman, and taking the duties of head gardener, that I am prompted to make these few remarks, and I am confident that where the foregoing hints are strictly enforced the result will be in every way satisfactory. The change may cause a little murmuring amongst the men at first, but this will be quickly overcome, and the routine will eventually become a pleasure to the workmen.—GEO. PARRANT, *Ashby Lodge, Rugby.*



NATIONAL CHRYSANTHEMUM SOCIETY'S EXHIBITIONS.

IN addition to the three exhibitions announced to take place at the Royal Aquarium in October, November and December, the usual show of early Chrysanthemums, Dahlias and Gladioli will be held on September 3rd, 4th and 5th, the National Chrysanthemum Society giving £20 in prizes for early Chrysanthemums and £10 towards the Dahlia and Gladioli classes, supplemented by a grant of £50 from the Royal Aquarium Society. The schedule of prizes will be issued, as heretofore, with those of the National Chrysanthemum Society.

M. DE REY-DELLET'S CHRYSANTHEMUMS.

THIS French amateur raiser was better known a few years ago than he is to-day, for unfortunately a long time has elapsed since he sent us anything of great merit, *La Triomphante*, *L'Ebouriffée*, and *Marsa* being the last. During this season I have only met with two from this grower which have struck me as worthy of note. Vice-President *Boulreux*, a fimbriated Japanese, a fair sized, roundly built flower, colour rosy mauve, and *Mdlle. Antoinette Truelle*, a globular Japanese, medium size, colour a rich scarlet crimson and golden reverse. Very solid and compact are the ones referred to.—P

SHEFFIELD CHRYSANTHEMUM SOCIETY.

THE annual dinner of the above was held in the Masonic Hall, Sheffield, on the 28th inst., under the chairmanship of Mr. C. E. Jeffcock, President of the Society. Delegates were sent from the Wakefield and Leeds Paxton Societies, Rotherham Gardening Society, and the Sheffield and Walkley Amateur Floral Societies. Mr. Housley, Secretary, in reply to the toast of the Society, said it was a credit to its patrons. They commenced the year with the sum of 9s. in hand; but the Committee worked hard, and at the end of the year they had a balance of £63 5s. 9d. In addition to this the sum of £9 13s. 6d. had been contributed to the provident fund established in connection with the Society, which had to its credit £37 0s. 4½d. This spoke volumes for the efficiency of the Committee. Monthly meetings are held, when papers and essays are read and discussed on general horticultural topics, and small prizes are offered for exhibits of cut blooms and plants. A library has also been formed in connection with the Society, consisting of the principal works published on horticulture. After the usual round of speeches, toasts, and songs the proceedings closed, a most enjoyable evening having been spent.

PRINCESS VICTORIA.

I SHOULD like to advise gardeners who have to meet a large demand for white flowers at Christmas to give Princess Victoria a trial, for it is the best late white that I know. At the present time it is quite equal to the best blooms of *Avalanche* that I have seen at any of the shows during the last season, with very much more substance in the petal, and altogether a heavier flower. I am sure a few dozen blooms of the above would be appreciated by many employers, and admired by visitors at this time of year. It is a splendid keeper, and blooms that have been cut ten days and kept in a room with fire daily look as if they would keep for as long again.—W. F. SMITH.

I CAN fully endorse all Mr. G. Inglefield says on page 69 in favour of the above as a decorative variety. I bought three plants last winter which, however, were not delivered until March, 1894, and then only moderately rooted; consequently, the crown bud was late in formation. On this account I ceased to take out side growths. The plants were housed with the general collection in September, and allowed to extend side shoots at will. To my surprise in December it produced the most beautiful display I ever beheld in any one Chrysanthemum. The stem is very erect, and the creamy-white flowers from side shoots are carried on thin, erect stems requiring no support. Having a heavy demand for flowers at the time, I introduced this variety for room decoration, and I need scarcely say the name was soon inquired after, and everyone who has seen it admit it to be the best. I intend growing a large number of it in the same way this season, and would strongly advise others to grow it. *Eda Prass* was treated precisely the same, but the result was not so encouraging.

In the list of twelve decorative varieties sent by me to Mr. Molyneux, and which appears in the *Journal of Horticulture*, January 24th, I gave it a vote, the only one it appears to have received.—J. DOUGHTY, *Cranbrook*.

A CRITIQUE.

THERE is no doubt that the elections of the Chrysanthemum for all purposes is a step in the right direction, to enable one to choose what to grow out of the number of varieties we now have, especially when plants are limited to small numbers.

If these elections are to be continued it is hoped that it will be possible to increase the number of decorative varieties to thirty-six, twelve is not sufficient to cover the flowering season, and to divide these into three sections, taking Madame Desgrange, James Salter, and Lady Selborne, in the first section; Source d'Or, Mons. Astorg, and Cullingfordi, in the second; Meg Merrilies, Ralph Brocklebank, Grandiflora, and Mrs. Cannell in the last. My idea of decorative Chrysanthemums is that they should be a decided colour, good constitution, carry their heads erect, and be free flowering, whether for furnishing or cut flowers. When discussing this subject in a company of gardeners it was generally admitted that the incurved and Anemones did not find favour, nothing but the Japanese would please the ladies.

Looking down the list Mrs. G. Rundle is admitted to the charmed circle of twelve. Sœur Melanie, Avalanche, and James Salter just miss places, three of the best for decorative purposes, while others could be mentioned equally as useful. Mrs. C. Harman Payne, Moonlight, Mrs. Dixon, Stanstead White, Stanstead Surprise, Barbara, Nonpareil, Princess of Teck, Jardin des Plantes, Chevalier Domage, Thorpe, jun., Fleur de Marie, Nelly Rainford, the Christines, and several others in the lists sent in, are not good decorative varieties. If a certain variety is liked there is nothing else to do but to grow it.

My motive for writing this critique is to point out to those who kindly sent in their votes that other varieties might be substituted with advantage to persons who are forming collections or in search of new sorts.—F. G.

GREYIA SUTHERLANDI.

THOUGH this plant has been considered chiefly interesting to botanists it is by no means devoid of horticultural merit, for the bright red flowers are produced in dense terminal clusters, and have a rich appearance. (See woodcut, fig. 17). In this country specimens, which are not very numerous, seldom exceed a few feet in height, but in its native habitats, the rocks at Port Natal, it is said to attain the dimensions of a small tree, which when in flower has a very brilliant appearance. The leaves are somewhat fleshy and crenated at the margin. Some are quite smooth, and others densely pubescent, a peculiarity that has been repeatedly noted by several observers. It blooms early in the year.

PEELING AND CLEANING VINES.

As has been so graphically described by Mr. Taylor, extreme cases of insect attacks on Vines require extreme methods of eradication. As all Grape growers are aware, both red spider and mealy bug are serious pests to deal with in the routine of culture of the Vine, and in obstinate cases desperate measures have to be undertaken if the foe is to be successfully combated. But to carry out the practice of peeling away the bark of Vines year after year as a safeguard against insect attacks is, besides being an unnecessary proceeding, not in my opinion likely to add either to the general health or longevity of the Vines.

During the past nine years I have not had a particle of bark removed from the Vines under my charge, although during earlier years both red spider and thrips were very much in evidence. Of these latter not any has been seen for the past seven years, but of red spider we have had a little occasionally, according to the season. The hot and dry season of 1893 brought the worst attack of late years, but last season none was seen, in fact I never saw Vines clearer from this pest.

My practice is to give the rods two thorough washings with warm soapy water, following immediately before the bark is dry with another washing, this time using a decoction of Gishurst compound. These washings cannot be too thorough, in fact the bark should be saturated. For this work of washing we use new painters' brushes. It is of little use if red spider has been in evidence to use half worn out brushes, or worse still those home-made toys of matting so often seen. By using brushes in good condition, if there is the "will" behind the brush, the wash can be thoroughly worked in, especially about the old spurs. If the above practice of washing annually is carried out, whether red spider is present or not, I do not think other details of culture being carefully carried out that red spider will prove very troublesome.

Attacks of spider are very often aggravated by faulty ventilation as much as anything. I have been in vineries, and could see at a glance by the appearance of the foliage that the structure was not properly ventilated. On feeling the foliage it has been quite hot, and just in the right condition for inviting an attack of spider.—A. YOUNG.

I THINK I have used the tar mixture as freely as most men have, but not with very satisfactory results. However, "D. R." (page 55) will find the following formula (Austin) quite safe. Take some stiff clay and work up with water to the consistency of cream, 4 quarts; then add

three-quarters of a pint of coal tar and mix well. Paint the rods alone but not the eyes. After careful scraping and the application of the tar mixture, on careful examination "D. R." may perhaps find on bright sunny days the pests taking their walks abroad, and he will be justified in resorting to drastic methods of destruction.—W. POTTS.

I HAVE read with great interest the various opinions expressed in the *Journal of Horticulture* on the peeling of Vines, and wish to express mine on the subject. By what I understand peeling Vines is taking off all the bark that can be torn or scraped away, for the purpose of facilitating the destruction of insects. The dead tissue formed on the stems of Vines and other trees is certainly not without its use. Its purpose is to protect them from external injury, and probably also from sudden changes of temperature, as the dried tissue is a bad conductor of



FIG. 17.—GREYIA SUTHERLANDI.

heat. Vines grown under glass may not need protection against injury or sudden changes of temperature, and in this case there can be little or no detrimental effect to them, although the vital tissues are deprived of the natural protection. Yet neither can there be any direct benefit to the Vines from such an unnatural operation, but there may be indirectly benefit in their being more easily kept clear of insect pests.

Mr. Taylor (page 55) attributes his light crop of Grapes in 1894 to the scraping of his Vines the previous year. He may be right, but it is to be noted that he also tells us that previous to his cleaning the Vines many of the leaves were rendered useless, owing to severe havoc by red spider. Was not that alone sufficient to cause the crop to be lighter this past year than usual? I am at a loss to understand why Vines should have a tendency to flag after being deprived of their dead bark. Surely this has little to do with transpiration and absorption of water. The direct rays of the sun on the stems might to a slight extent cause evaporation from them, but is not the loss infinitesimal, especially when the stems are painted with clay?—B. S.

I CANNOT refrain from saying a few words in the present discussion. Like other questions, the dressing of Vines has two sides—a right and a wrong one. The right one Mr. Craven has evidently pursued in his case, but I cannot agree with Mr. Craven when he says

no dressing should be done beyond washing with some approved insecticide, as circumstances alter cases, and Mr. Craven would do something more if his Vines were badly infested with mealy bug. But the words "peeling Vines" grate on my ear. To peel them is one thing, but to take off loose bark is another. The Vine throws off its bark as new is made, and that is the bark to pull off which we find hanging from the rods or in any way loose; but the inner bark must be let alone.

If vineries are looked after as they ought to be no bug ought to be found in them, but I advise those who are troubled with it to paint the houses with two coats of white lead, or rub all woodwork and iron with a cloth wrung out with petrolenm before any washing down is done; then wash the Vines and paint with coal tar, mixed as follows, though I have not to use it here:—One 5-inch potful of coal tar to five 5-inch potfuls of water; mix with clay to form a smooth paint. The above mixture with a watchful eye will banish the enemy.—MAY FLOWER.

THE subject under discussion being of great importance to gardeners, I should like to give a definition of what bark is, taken from an old educational work by Chambers. "The bark of exogenous trees, consisting of three, and sometimes four parts—namely, the cuticle, or outer skin; the cortical integument, or solid part; and the liber, or inner bark. Of these the cuticle, or outer skin, soon cracks, and partially peels off, as from the closeness of its texture it cannot dilate, so as to give space for the bark beneath it when that increases in thickness. The cortical integument is what is properly called bark, and this in some trees attains a considerable thickness, as, for example, in the Cork tree, which is a variety of the Spanish Oak, and in several kinds of Elm. This bark, or cortical integument, is occasionally in two layers, the inner one of which increases so rapidly in diameter, that the outer often cracks, and in some trees, as, for example, in the Oriental Plane, it falls off in large plates as the part below it expands. The liber, or inner bark, which is quite distinct from the two layers of cortical integument, is very thin, though a layer is deposited of it every year within that of the preceding year. It is generally very elastic, and dilates as the stem of the tree increases in thickness, but in a few ligneous plants, such as the Vine and the Honeysuckle, a portion even of the liber is thrown off annually."

The words "peeling" or skinning appear to mean taking off the entire skin down to the wood. I prefer the word barking, as there are several layers of bark. Who is more able to give advice to young gardeners than those who have had practice? I have heard of Mr. Craven's success as a Grape grower; but I fear from his own admissions he has not had the chance of proving his ability as a bug exterminator—at all events, on Vines, as he said in one of his articles that he only had connection with it in one instance, and that as a subordinate.

It is my firm opinion that where mealy bug and red spider abound on Vines the only sure way of reaching them is by assisting Nature in the removal of all superfluous bark. Even with this method their eradication is not an easy matter. To my mind, trying to clear bug out of a vinery without removing the loose bark from the Vines, and that somewhat closely, would be like trying to wash filth off the body with the clothes on.

A practical question we have to consider is this: Would the health of the Vines be as much impaired by barking as a house of Grapes would be injured were the bark and insects under it to remain undisturbed? I think the old motto fits in here very well—"What is worth doing at all is worth doing well."

My advice to those who have either bug or red spider on Vines is to remove as much of the loose bark as can be done without penetrating the skin of the Vine. I should not be an advocate for this practice were it not that I feel convinced that it is next door to impossible to exterminate these pests without taking this course. Barking Vines in a rational manner has been resorted to for many years by good growers, who, as "Erica" states, are not allowed to figure in the show tent. By this means, whatever insecticide is used, it has a fair chance of producing the desired effect. Those who have no insects on their Vines have cause to rejoice, and certainly have no need whatever to remove any bark during the whole life of the Vine. I have heard people say they like to see the rods made smooth, though I think they look much better if the bark is only partially removed. I cannot see how this loose material can be of any benefit to the rod; it can hardly be necessary to keep it warm in a heated house. I hope we shall be enabled to get the best information possible on the subject from practitioners.—J. S. G.

I AM not acquainted with Mr. W. Taylor personally, nevertheless I admire the man for recording his experience in peeling Vine rods. He has made it plain that they were denuded of every particle of bark. I strongly disapprove of the practice, and hope W. Taylor will tell us how his Vines have behaved at the end of the next season.

Your correspondent, W. M. Potts (page 55), has remarked on the merits of the Grapes grown by Mr. Nash. I have seen his very excellent Grapes at exhibitions, and the grower of them, too, on one occasion, and thought him a less pompous man than some I have met. I feel sure he would be ready to show anyone interested, the peeled Vines at Badminton. As regards the garden labourers taking part in the operation of peeling Vines, I think Mr. Potts casts a mild slur on them. Many of them are thoroughly observant and careful. I was a garden labourer once, taking part in all outdoor rough and smooth operations, and often taken indoors to assist in peeling and cleaning

Vines. I well remember the caution I had at the commencement against scaling the buds.

I have two vineries planted with young Vines, unfortunately infested with red spider, and also a small trace of mealy bug. I am painting all wood and ironwork, and dressing the Vines with their "jackets on" with the tar mixture in about the same proportions as stated by your correspondent "E. K." (page 77). I have used this mixture on other occasions, and can thoroughly rely on its efficiency in eradicating these pests. I am not in a position to say how the Vines in question became infested, as I had not charge of them, but I will gladly send a few lines at the end of the season, giving the effects of the dressing.—D. P., *Lindley Hall Gardens.*

DURING the last few weeks several letters have appeared in the *Journal of Horticulture* on peeling Vines, some writers condemning the practice, while others advocate the system when properly carried out. If Vines have been more or less attacked with red spider, thrips, or mealy bug during the summer the cultivator may rest assured that with the fall of the leaf the pests will take up their winter quarters in and under the loose bark, especially that in the crevices surrounding the spurs, and there quietly wait the advent of favourable conditions to appear in greatly increased numbers as soon as young leaves are developed. This being so, what is to be done? To attempt to destroy the insects by means of softsoapy water applied with a brush without first removing the loose bark would be simply a farce—labour wasted. There is a great difference in removing all loose bark from affected Vines, even to the extent of carefully scraping the bark off the spurs with a blunt knife, and in laying the inner (green) bark bare. The former treatment is sound in the circumstances indicated, and the latter method of procedure simply barbarous.

Our Vines are barked in the reasonable way, washed with a softsoap solution, then dressed with a mixture of 3 lbs. each of softsoap and sulphur, a 6-inch potful of soot, and half a pint of paraffin in eight of water, clay being added to form a paint. This is applied to fruit trees also, and answers the intended purpose well. One year the Vines were not so dressed, and the next were attacked with red spider from a few of the preceding season having rested under the bark.

In reading Mr. Taylor's interesting and useful article on page 55, it occurred to my mind that the flagging of the leaves of his Vines might in a great measure be attributed to the check which they had sustained through partial loss of foliage the previous summer and autumn. Mr. Taylor's testimony is favourable to the barking of Vines under certain conditions. "I think under the circumstances," writes Mr. Taylor, "it was best to take the bark off." The operation was performed on the principle of bad cases requiring the application of strong remedies, otherwise such an able cultivator as Mr. Taylor would not have "peeled" his Vines to the extent he appears to have done.

I can fully endorse Mr. Potts' remarks on the excellent examples of Grapes annually staged at Bath and other shows by Mr. Nash of Badminton, and who, Mr. Potts says, "takes every particle of bark off" his Vines every year in the process of cleaning preparatory to forcing them the following year, a fact which goes to show that Grapes of the highest order can and are annually produced by "barked" Vines, notwithstanding statements to the contrary.—H. W. WARD.

SPAWNING MUSHROOM BEDS.

It could not fail to be instructive to many gardeners and others if your readers would state the temperatures for spawning Mushrooms which they have found the most satisfactory. I have a bed in which at the end of last week the thermometer rose to 120°, so I took the bed out partly, well turned the material with other manure, and now I have put all in again, as I did not intend it to be dried by overheating. I do not think it will rise much more than 110°. The material smells sweet, and I could not press any moisture out of it. Am I right in pulling the bed out, or how high might the temperature of a new bed be expected to rise, and how deep should the thermometer be plunged in the bed?

The Mushroom crop is so important, and the disappointment so great when beds fail, that I am sure there are gardeners both able and willing to try and help the less successful to reduce failures to a minimum. I have unfortunately had two partial failures. I send a portion of "spawn."—MUSHROOM.

[The corner of a brick sent contained only the smallest particle of mycelium, but this is not infrequently the case with "corners," whereas the bulk may be fertile. Still, if the whole brick was like the sample sent it would not be capable of affording good produce. We shall be glad to publish the experience of Mushroom growers as suggested by our correspondent.]

THE FRUITERS' COMPANY AND ST. PAUL'S DAY.

THE Master and Wardens of the Fruiterers' Company for each year are annually chosen on the 25th January, the Feast Day of the Conversion of St. Paul, the Patron Saint of London.

This festival day has a celebrity peculiar to itself. During the Middle Ages, and even down to our time, it was an article of constant belief that the whole character of the coming year is prognosticated by the condition of the weather on this day. The special knowledge of the future which might be derived from it was arranged under four heads in

four monkish Latin verses. Several old translations of the lines are met with; the following is one of the English versions:—

"If Saint Paul's Day be fair and clear,
It doth betide a happy year;
But if it chance to snow or rain,
Then will be dear all kinds of grain;
If clouds or mists do dark the sky,
Great store of birds and beasts shall die,
And if the winds do fly aloft,
Then war shall vex the kingdom oft."

St. Paul's Day last year was miserably wet and cold; this year it was made unpleasant by rain and sleety showers. Still, we will hope for a happy year, and, at least, we do not expect that abnormally high prices will rule in our grain markets. At the meeting of the Court of Fruiterers last Friday, the Lord Mayor (Sir Joseph Renals) was unanimously elected Master of the Company, and Mr. W. E. Brooks and Mr. T. Platt, Wardens. The Lord Mayor was unable to attend the banquet that followed in consequence of impaired health. Mr. W. Garland Soper, the Senior Past Master of the Guild present, was chosen to preside, and he displayed marked ability in the position. The company numbered about 150. After the Chairman, the chief speakers were Sir Donald Currie, Sir Stuart Knill, Mr. Alderman and Sheriff Samuel Alderman Pound, and Mr. John Eagleton. Among horticulturists present were Messrs. G. Bunyard, Peter Kay, George Monro, T. Francis Rivers, and J. Wright.

WINTER-SPRAYING FRUIT TREES.

THE fruit trees here are washed regularly every year as soon as they are pruned with soft soap and water, and the branches thoroughly scrubbed with a brush, such as is used for cleaning carriage wheels, to remove insect pests, smut, and any cryptogamic growth that may be on the bark. After this is done the trees are syringed all over with solution of a wineglassful of petroleum to a gallon of water to destroy any insects that may still be left harbouring in the crevices of the bark and branches.

Hitherto this operation was performed by two men. One was employed in churning and mixing the oil and water with the syringe in a pail, while the other was applying it to the tree. It was a tedious process in getting over the work where there were a number of trees to be done, and I often thought it would be a great advantage and saving of labour if a garden engine could be constructed so as to mix the petroleum and water just as it left the nozzle of the engine. About two years since a member of the firm of the Stott Fertiliser and Insecticide Company, Ltd., called on me, and I mentioned the circumstance to him, pointing out the great advantages to be derived from such an engine. He said that the firm had been working for some time trying to perfect an engine of this kind, and they had succeeded, with the exception of some minor details, in adjusting the quantity of petroleum the engine can deliver per gallon of liquid, which could be easily got over.

After this assurance I ordered a 30-gallon engine to be sent on as soon as possible after it was perfected. It took longer to do this than they expected, and I did not receive it till last autumn, and this is the first season I have used it in spraying the trees. It does its work well. It is a great saving of time, as we can do six trees in the time we used to take to do one with the syringes, and it is much cleaner and easier for the men. The petroleum is put into a square box with a perforated lid, which is level with the top of the engine, and by means of a valve attached to it, it can be regulated and adjusted to distribute from a quarter of a glass to two wineglassfuls to the gallon of water.

For summer or winter spraying of fruit trees I consider the engine is perfect, and a great improvement on the old method of using the syringe when applying petroleum as an insecticide to trees.—
A. PETTIGREW, *Castle Gardens, Cardiff.*

UPWARDS AND ONWARDS.

PROBABLY at no other time of the year are flowers so greatly appreciated as at present. They brighten the wintry days; cheer us when we feel downcast; provide us with food for thought and for work, and moreover prove to us that at all seasons of the year flowers may be had by proper attention to the essential details of culture and of kinds. During the past decade the advance made in the improvement of winter flowering plants has been unprecedented, as will readily be admitted when the Chrysanthemums, the Primulas, the Cyclamens, and numerous others of to-day are mentally compared to those of days gone by. For quality of flower, richness, and diversity of colouration, and exquisite symmetry of form in either of the examples above named there can be little, if any, comparison. Yet we must not despise those that were really pioneers to the present greatness, for did they not act as an incentive, if such was needed, to those true florists, who, in their unremitting endeavours to find something better, have earned for themselves the gratitude and respect of all classes of the gardening community of the present day? Upwards and Onwards was their motto, and it must be ours. Let us strive as our predecessors have striven, that our successors may say the same of us as we are saying of those good men who have gone before. The reward is worth the winning, and it can only be had by honest labour. Who will not enter the lists?

Though mention has been made in the above lines of Chrysanthemums it is not proposed to refer again to them, but to the other two mentioned—Primulas and Cyclamens. Taking them in their order, let us look in on a collection now at the summit of its beauty, and see what

a wealth is afforded. But perhaps it would be as well before going farther to say that the display may be seen by any readers who care to journey as far as Reading and inquire for the nurseries of Messrs. Sutton and Sons, and whenever it is possible to go the opportunity should be taken, for there is much to see, to interest, and to instruct, as everyone who has been will be only too ready to testify. Let the guide be Mr. Leonard Sutton (as in the present case) or Mr. J. Martin (as on a previous visit) the result can but be the same, and that is the visitor departs with the glory of the flowers ever before his eyes; the thought of the courtesy and geniality, combined with an unusually deep practical knowledge of his guide, and the determination that should ever kind fate place Reading in his way again he would not fail to avail himself of another look, and mayhap another talk.

The strides that have been made in Primulas by the great Reading firm have been referred to many times, and it is consequently the more difficult to say anything fresh, and yet did we not place the latest introductions on record year by year we should not be doing justice either to the introducers, to our readers, or to ourselves, and it is simple justice that is aimed at by the writer, and surely that is all that is desired by anyone. Thousands of plants are to be seen, representing many varieties, and it is obviously impossible for anyone to mention the whole, so reference will only be made to those that are possessed of more than ordinary merit either in colour, freedom of flowering, or shape.

Though it has been pointed out many times before, the fact of the Chinese Primulas having been raised from one species will bear repetition. To the cultured mind of the florist this conveys a world of meaning, for does it not show that instead of hybrids the magnificent kinds seen to-day are cross-breeds? At Reading the original form may be seen alongside the best varieties, and the latter certainly lose nothing in the comparison. The plants are of course models of health and good culture, and as examples of the latter could not be overpraised. The chief points may be briefly stated. The plants are compact, the foliage stout and broad, and the handsome flower trusses are carried well above the leafage. There are thousands of plants in 5-inch pots, all raised from seeds sown in June; but let us now glance at a few of the varieties, for time presses, and they must not be missed.

As representing one of the first of the firm's introductions, and one that continues to maintain a very high position in the public estimation despite the fact of its having been sent out in 1879, mention may be made of Ruby King, while another introduced in the same year—namely, The Pearl, still holds its own. The truss of this chastely beautiful white variety are shapely and strong, while the individual flowers are as near perfect as possible. Of the first named nothing need be said; it has its reputation, and in upholding that it proves its merit in a most convincing manner. Brilliant Ruby is exceedingly floriferous and sturdy in habit. The colour, while resembling Ruby King, is richer and more intense, and is of a distinct and pleasing shade. The flowers of Reading Pink are of a particularly delicate tint that commands instant attention and admiration. The blooms are large in size, stout in texture, and of splendid shape, while they are in addition borne in great numbers. Rosy Queen speaks for itself in regard to colour, as indeed do most of the Primulas seen at Reading. The soft shade of rose is peculiarly pleasing, the trusses being large and shapely. It is a Fern-leaved form, and this characteristic not a little enhances its beauty. Reading Blue is a blue indeed. The drab shade that predominated in many of the earlier "blues" has almost disappeared in this, and it probably stands unrivalled for depth and purity of colour, combined with freedom of blooming and compactness of growth.

One of the most useful of the Fern-leaved section is Snowdrift, which is exceptionally early and very free flowering. The blooms do not fall from the plants so readily as do some of the varieties, and this may be taken as a distinct point in its favour for decorative purposes. Grenadier is very brilliant in colour, of splendid habit, and is certain to attain popularity in a very short time. Gipsy Queen everyone knows. The heads of flowers, pure white in colour, stand prominently over the deep green leaves, which have red stalks. It belongs to the Fern-leaved section, and is one of the most distinct, and at the same time charming, of the whole collection. A word for the Giants, and then we must glance for a few moments at the doubles. They have been well named, for they are giants indeed. The blooms are of immense size, extraordinary substance, and carried in a manner that leaves nothing to be desired. Though of such size, there is no semblance of coarseness either in foliage or flower. White, pink, and crimson are each represented in perfect condition, while a superb Fern-leaved white lends variety and makes a splendid fourth.

The structures devoted to the double kinds were hands of colour on each side, the colours being arranged in groups, each numbering some dozens of plants. In this manner the best possible effect is insured, and the eye of the visitor can thoroughly grasp and retain the one ere it passes to the next. As a whole the display is wonderful. The intensity of colour, the contour of the flowers, combined with the sturdy, erect habit of growth, demonstrate very conclusively the quality of the strain and the care with which it has been selected. It has been said that with a double blue Primula there is a lack of substance of petal and compactness of habit, and no doubt that was the case a little time ago, but it is not so now. The growth is very robust, and the blue shade is most decided. Both Sutton's Double Blue and Imperial Blue are of the first quality, and will long hold a foremost position. The blooms of Double Heliotrope are excellent in every way, being particularly refined both in shade and build.

The popularity and utility of the double Primula for cutting

purposes is unquestioned, and the double white seen at Reading, with crimson, carmine, and scarlet, must be accorded the most prominent position for this purpose. There are, however, other varieties that may well be added, such for instance as Fern-leaved double white, which is of the greatest beauty. Then we have Carnation flaked, appropriately named from its resemblance to a flaked Carnation. The semi-double Gem, with its pink flowers set in finely cut leafage, must not be forgotten, neither must double alba magnifica, which, with its charmingly fringed flowers, is undoubtedly one of the very best.

One of the most interesting houses at these nurseries is the one devoted to the trials. Here twelve plants of every sort are grown for comparison, and a glance suffices to show the quality of any particular stock. Though the plants are smaller than in the houses previously inspected there is no lack of health observable, and as a whole the trial is probably unique. It is in every way complete, and the firm is to be congratulated on the thoroughness with which it is carried out, as were it in any but this manner it would, instead of being valuable in all ways, be worse than useless.

Marked as is the advance in the Primulas it is scarcely less so in the Cyclamens, and to go to Reading in the winter without seeing the latter would be an error always to be regretted. More perfect examples of proper methods of cultivation could scarcely be found anywhere. The plants, which are almost all in 48-sized pots, are dwarf and sturdy, with marbled leafage, and flowers standing on stout footstalks well above. It is not possible to mention all the varieties, but one cannot stop without reference to a few of the best. Vulcan, with its rich maroon coloured flowers, at once attracts the eye, and commands admiration; as does the Salmon Queen, for the strain of which Messrs. Sutton & Sons received an award of merit at the last meeting of the Royal Horticultural Society. Its colour may be best gathered from its name; Butterfly, pure white, is a general favourite, and is certain to continue so, while for the giant section only words of praise can be found. But time flies, and the end must be reached. Let all who read this take the advice previously conveyed, and go to Reading to judge for themselves.—H.



FRUIT FORCING.

Peaches and Nectarines.—*Earliest Forced Trees.*—Although good setting of the fruit often attends the mere shaking of the trellis or trees, it is desirable to fertilise the blossoms as they expand and the pollen becomes ripe, distributing it over the stigmas with a camel-hair brush, feather, or rabbit tail mounted on a stick. Syringing may be resorted to both morning and afternoon, when the fruit is well set and the weather bright, but in dull periods damping the floors and borders will be sufficient, and the afternoon syringing should take place early to allow the foliage to become fairly dry before nightfall. This is important, for excessive moisture encourages soft woody growths, weakens the tissues, and interrupts the elaboration and assimilation of the juices, which are essential to the development of the fruit and the sound construction of the wood. The water used for damping and syringing must be of the same temperature as the house, also that supplied to the roots. Avoid a sodden condition of the soil, which frequently induces the casting of the fruit, and the growth of the long-jointed useless wood. Disbudding must be done very carefully at this early season, removing a few growths from a tree at a time, and continuing the process daily. This is preferable to removing many young sprouts at distant intervals, as it gives a check to the roots, interferes with the diffusion of the nutrient matter, and promotes wood growth at the expense of the fruit. The night temperature will need to be maintained at 55° to insure steady progress, or even 60° on mild nights may be allowed, while on cold it may fall to 50°, for safety is on the side of the low degree, 60° to 65° by day artificially, 5° less on these figures when the weather is severe and dull. Ventilate early, admitting a little air at 65°, not allowing an advance over 70° without free or full ventilation, closing at 65°, always excepting a small opening at the top of the house constantly. This prevents a stagnant atmosphere, secures a healthy condition in the foliage, and it is enabled to act fully in the presence of light.

Second Early House.—Trees started at the new year are expanding their flowers, and are singularly free from aphides. Great care must be exercised in fumigating with tobacco or even vapourising with nicotine, as the organs of fructification are easily destroyed, therefore fumigation on two or three consecutive evenings moderately must be had recourse to if necessary in order to keep the insects in check, but vapourising is the safest process. Solutions sometimes injure the blossoms, and ought to be avoided. With an excess of blossom buds the trees may fail to set the fruit well, but by removing those on the under side of the shoots the remainder are correspondingly invigorated and the setting satisfactory. Syringing is best discontinued from the time the buds show colour and until the fruit is set, but the house may be sprinkled in the morning and afternoon, which will afford quite enough moisture for steady progress, a stagnant atmosphere being avoided by leaving a little

air on constantly at the top of the house and increasing the ventilation from 50°, which should be the minimum day temperature, and 65° the maximum from sun heat with full ventilation. Regard, however, must be had to cold air, it not being advisable to admit too much, but vary the ventilation according to external conditions. Inside borders should be thoroughly moistened to the drainage, avoiding needless watering.

Trees to Afford Fruit in July.—The house should be closed at the beginning of February, when such varieties as Dymond, Royal George, Grosse Mignonne, Noblesse, and Bellegarde Peaches, with Elruge, Dryden, and Pineapple Nectarine, will give a supply of the choicest fruit, while the earlier varieties, if any are grown, will come in about three weeks earlier. The very early varieties, however, are not worth growing beside these midseason sorts, but the second early, as Hale's Early, A Bec, Dr. Hogg, and Rivers' Early York Peaches, with Rivers' Early, Goldoni, and Lord Napier Nectarines, are excellent for preceding the midseason varieties. The trees should be syringed in the morning and afternoon during bright weather, occasionally only in dull, and the border must be brought into a thoroughly moist condition. Employ fire heat to raise and maintain the temperature at 50° by day, above which ventilate freely, and allow to fall to 45° or 40° at night.

Succession and Late Houses.—Finish pruning the trees at once, dressing them with an insecticide, after washing with softsoapy water, 3 or 4 ozs. to a gallon, taking care not to dislocate the buds, not using the dressing at winter strength if the buds are advanced in swelling, but employ a weaker solution and applying with a syringe. Secure the trees to the trellis, allowing ample space for the swelling of the branches, and leave room between them for laying in young wood for future bearing. Loosen the surface of the border lightly, not disturbing the roots materially, removing any loose soil or old mulching, and supplying fresh loam, with a dressing of bone superphosphate three parts, sulphate of potash two parts, and one part sulphate of lime, mixed, applying a good handful per square yard; the waterings will wash it in fast enough. If the borders are at all dry afford a thorough watering.

Vines.—*Early Forced in Pots.*—Thin the berries somewhat freely, so as to secure large ones, yet not to the extent of making the bunch loose and unshapely. Maintain the night temperature at 65°, falling to 60° on cold mornings, but raise the heat early to 65° or 70°, keeping at 70° to 75° by day, increasing to 80° or 85° with sun heat, and closing at 80°, with a prospect of an advance to 85° or 90°. Ventilate very carefully, always early, and closing in good time, then damping the house. Damping is also necessary early in the day. Afford copious supplies of tepid liquid manure.

Early Forced House.—Duplicate and surplus bunches should be removed, and the berries thinned as soon as they become well formed, not deferring it beyond the distinguishing of the fertilised from the unfertilised. The inside border may be covered about an inch thick with sweetened short stable litter, which should be turned several times before it is introduced, otherwise the ammonia evolved may prove disastrous to the foliage. Attention will be required in tying the shoots and in stopping the laterals. Where space is restricted the shoots may be stopped closely, say one joint beyond the bunch, and the laterals be pinched at every joint as made. In other cases more growth may be allowed, but in all it is important that the principal leaves have full exposure to light and air.

Vines in Flower.—When coming into bloom maintain the night temperature at 65°, 70° to 75° by day, and 5° to 10° more from sun heat. Muscat of Alexandria must have 5° more, and as these are liable to set indifferently the bunches should have all the light possible and their ends facing the sun, then, when in flower, they can be rapped on the stem gently, or better have the pollen disposed on the stigmas by using a camel's-hair brush charged with pollen from free-setting varieties. A constant circulation of warm, rather dry air is conducive of a good set, and it is advisable not to stop the growth closely during the setting period.

Vines Started at the New Year.—Continue syringing the rods twice a day, but do not keep them constantly wet, as this induces aerial roots from them, and interferes with soil-root formation. Syringing may continue until the bunches show, but damping the borders and paths two or three times a day will be necessary to maintain a genial condition of the atmosphere. Do not be in a hurry to disbud, letting the growths advance until the bunches appear in the points of the shoots, then the weakest and otherwise least desirable can be removed, but it should be done gradually so as not to cause an appreciable check.

Vines to Afford Ripe Grapes in July.—The beginning of February is the latest time for starting midseason varieties to finish after midsummer. Outside borders need not be covered with fermenting material, but a covering of leaves with a little litter over them to prevent their blowing about is all that is necessary to prevent the soil becoming frozen. The stems of the Vines, if outside, must also be thoroughly wrapped in haybands. Maintain a minimum temperature of 50°, and allow an advance to 65° from sun heat, 55° being the maximum from fire heat in the daytime. This will cause the sap to rise steadily, and a light damping occasionally assists in promoting the osmotic action of the cells, and the transference of stored matter from the wood to the growing parts. Due moisture at the roots is also imperative, for though the moisture may not be excessive some is necessary, therefore moisten the border through to the drainage, using water slightly in advance of that of the house in temperature, and if the Vines are weakly and the border in good order afford liquid manure after the moistening of the soil, which will to some extent displace the water and afford nutriment in due time.

THE KITCHEN GARDEN.

Cauliflowers.—If late Broccoli has been much injured by frosts, or to the same extent as some of the midseason varieties, another sharp frost will about finish them. If it be thought advisable to forward a few dozen Cauliflowers so as to have them fit for use in advance of any wintered or started in band-lights, make a hotbed about 2 feet in depth and quite firm, spreading a little manure over this for the roots to lay hold of, and on this 9 inches of good loamy compost. When the soil is warmed through plant Early Snowball or one of the small forcing varieties, 15 inches apart. Protect with glazed lights and mats, but avoid undue coddling. Keep them well supplied with water, and use liquid manure freely directly the plants give signs of forming hearts. Autumn-raised plants wintered in frames should have abundance of air whenever the weather is not frosty, as they transplant badly after having grown strongly. If very small place singly in 2½-inch pots, and keep rather warmer than formerly. Hardened and planted under hand-lights or at the foot of warm walls before they become much root-bound there is a possibility of their surpassing larger plants not given a start in pots. In order to have a succession to autumn-raised plants sow seeds thinly in pans or boxes and place in gentle heat. If plants of Autumn Giant were not raised last autumn sow a few seeds at once, and the plants, if grown to their full size without experiencing a severe check, will give fine hearts about the middle of August, those kept through the winter being a fortnight ahead of them.

Celery.—The time has arrived for sowing seeds of early Celery. Give the preference to a good white variety, those which attain the largest size gaining most favour with exhibitors. Sow in well drained pans filled with fine loamy soil, making the surface quite level. Give a gentle watering, and after the water has drained away sow the seeds, covering very lightly with fine soil. Plunge in brisk bottom heat, cover with squares of glass, and shade heavily. The soil ought to be kept uniformly moist, and a light shading afforded whenever bright sunshine prevails after the seedlings appear. Before the plants become drawn transfer the pans to shelves near to the glass, but not in a cool house. After the first rough leaf is well developed prick out the requisite number of plants into boxes of rich loamy soil and keep in heat near the glass, or prick them out in a frame over a gentle hotbed.

Onions.—Those who are anxious to grow extra fine Onions should sow seeds of choice varieties in heat. It will be found that every fairly sound seed will germinate in heat far more surely than in the open ground, and every plant raised and duly planted on good ground will soon recommence active growth and surpass any that have been raised in the open in the usual way. Those small but expensive packets of fine varieties can thus be utilised to their fullest extent. There is no good reason why gardeners who are not exhibitors should not adopt the practice of raising Onions extensively under glass and planting out. Several thousand plants may easily be raised in boxes, and when about 4 inches high they can be dibbled out where they are to grow with trifling losses. The seeds will germinate quickly if the boxes are placed on a hotbed in an early started vinery, but bottom heat is not absolutely necessary.

Leeks.—In order to have fully grown well blanched Leeks fit for exhibition in August plants must be raised in heat, sowing the seeds not later than the first week in February. One of the larger exhibition varieties should be preferred. Leeks are excellent served as a vegetable, while if Onions keep badly a good supply of Leeks will prove very acceptable as a substitute.

Early Peas.—Very few gardeners can afford time and space for Peas in pots, but if extra early dishes are desired they might yet attempt their production by means of shallow mild hotbeds and rough frames, or such as may be at present in use for protecting Endive. Chelsea Gem or William Hurst are the best for frame culture, and in order to lose no time sow from a pint to one quart of seeds at once, either in pots or boxes of light soil. Germination will quickly take place in a Peach house or vinery, being forced, and the plants should be hardened off and planted where they are to crop before they have a chance of becoming stunted. In the meantime prepare the frame for the plants, surfacing over a shallow solid hotbed with short manure, on this placing 6 inches of rich loamy soil. When this is warmed through plant the Peas rather thickly in lines 15 inches apart. Those raised in boxes ought to have their roots shaken clear of soil, and be planted Box edge fashion in deep drills and pressed with a spade. If there is sufficient height in the frame place short stakes to the rows at once, and in any case dibble out a row of either Early Paris Market or Golden Queen Cabbage Lettuce between them. The latter will more than repay for the work done. Protect from frosts and cold winds. This class of dwarf early Peas may be raised in a similar manner for planting in lines at the foot of sunny walls, and a little later on south borders generally. William I., Exonian, or other popular early round-seeded varieties ought also to be raised in pots or boxes ready for planting out as soon as the state of the ground will permit—earlier though not quite so heavy crops being had in this way than by sowing in the open. During the first fortnight in February seeds of early round-seeded varieties may be sown in the open, but if the ground is in bad working order or saturated with moisture, delay sowing till it is in a better state, otherwise much of the seed may perish in the ground.

Broad Beans.—Should these be wanted extra early sow seeds singly in 2½-inch pots and place in heat to germinate, planting on a warm border after hardening. The remarks as to sowing in the open apply to these equally with Peas. Early Longpod and Beck's Dwarf Green Gem are very suitable for sowing early.

PLANT HOUSES.

Carnation Miss Jolliffe.—Young plants raised from layers late last autumn and placed in small pots will be well rooted. They are useful for autumn and winter flowering, saving the time and trouble of rooting cuttings in the spring. These plants may be placed in 2½-inch pots, and then stood in any cool house or frame where frost can be kept from them. Under these conditions they will continue to grow slowly and be ready for a good start when genial weather arrives. The point of the plants may be removed if they do not branch freely. Where sufficient have not been rooted cuttings may be inserted at once, and for this purpose young growing shoots should be taken from plants in a cool house. These must be cut close to a joint with a sharp knife, and two or three inserted round the side of thumb pots in sandy soil. When watered place the pots under a bell-glass in a house where the temperature ranges at night about 65°. If other varieties are needed they may be treated in the same way.

Asparagus plumosus.—Cuttings may be inserted singly in thumb pots in sandy soil. A portion of the main stem should be attached to each frond, say about half an inch in all on each side of the joint. These must be well watered and placed under band-glasses in the temperature advised for Carnations. From cuttings inserted now good plants for decoration in 4 and 5-inch pots will be produced by the autumn.

Caladiums.—A few of these may be shook out of the old soil and started into growth. If a propagating box with a good bottom heat exists the tubers may be plunged into it amongst cocoa-nut fibre refuse until they commence to grow, when they can be potted. Failing this provision place them in a pan or box, and arrange them over a hot-water pipe.

Crotons.—Where a brisk moist heat can be maintained young healthy plants may be potted at once. Be careful that the soil in which they are to be potted has been thoroughly warmed, or a severe check may result. The plants should be potted in the house in which they are to grow. Careful watering is necessary after repotting at this period of the year. Plants that have become bare at the base may be notched near the top and mossed. As soon as growing conditions are favourable they will form roots, and may be taken off. Cuttings of these plants if inserted while the wood is firm and the plants at a standstill, the foliage is certain to fall, and the cuttings will be a long time before they root. Plants intended to do duty for some time longer in small pots may have a little chemical manure applied to the surface to keep them in good condition.

Gardenias.—Those with prominent flower buds may be placed in brisk heat; do not overwater, and if infested with insects do not use strong stimulants, or the flower buds will become deformed. Young stock, if brisk bottom heat can be given, may be placed in larger pots and plunged.

Ixoras.—Autumn-rooted plants in small pots may, where abundance of heat can be maintained, be placed in 4-inch pots. These make capital decorative plants, 9 inches or a foot high, according to the variety. Water carefully and do not syringe the plants, or their foliage is liable to become spotted. Very frequent spotting is due to too low a temperature. Do not pot these plants until their shoots have started again into growth.

Marantas.—Plants that have enjoyed a period of rest and need repotting should be attended to at once. They start freely if brisk bottom heat can be given; in fact, much better than if potting is delayed until the sun has gained power. Strong, robust growing kinds do well in fibrous loam, one-seventh of manure, a liberal addition of sand and charcoal. If the pots are large enough carefully remove the old compost from about their roots, reducing the old ball about one-third. Some varieties do best with a good proportion of peat used in lumps in the compost.

Anthurium Scherzerianum.—Plants that have been removed for some weeks from the stove to a temperature 5° or 10° lower may again be introduced into the stove. With increased heat and moisture the plants soon commence to grow and flower. Where a good number are grown the plants may be flowered in succession.

Dracaenas.—Plants of various kinds that have been used for decoration and have become shabby may be stood on one side in a fairly warm house, and dried to harden their stems. If cut up while moderately soft at this early period of the year they are liable to decay. When dried for a few weeks the stems may safely be cut into lengths, and if placed in brisk heat nearly every one will start into growth. The root portion of old plants always do best.

Cannas.—The newer varieties are very useful for various decorative purposes. Plants that have enjoyed a rest may be divided and placed singly in pots according to their size. If placed in fairly brisk heat they will soon start into growth, when they can be removed to somewhat cooler quarters. If kept in heat they will soon push strong growths and flower.

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, London, W.

THE BEE-KEEPER.

APIARIAN NOTES.

FOUL BROOD.

"WILL you kindly inform me through the medium of the Journal if the bees (a sample of whose comb is sent by this post), died from the dreaded disease foul brood? Three expensive frame hives stocked with bees were purchased last spring. All have died in the same manner. I should be glad of definite information."

The comb sent is very badly affected with foul brood. Steps should at once be taken to eradicate this pest, as this disease is often propagated from one colony to another by robber bees entering affected hives and carrying off foul brood honey. No half measures will be of any permanent use. All combs and frames should be burnt, also the quilt, coverings, and any debris there may be about the hives. This should be carefully done so that not a particle escapes, and if burned in the open air the whole should be afterwards buried.

I am reminded of the care necessary in carrying out this operation, as when calling on a bee-keeper in a foul-broody district last autumn I saw combs from some stocks that had been condemned as a very bad case of foul brood. These were supposed to have been burned the previous week, a fire having been made in the open, and the frames and comb of the worst stocks had been consigned to the flames. They had only been partially destroyed, and I saw the bees from other stocks busily employed among the debris in clearing up any honey that remained. No wonder that foul brood was rampant in that district, and careful bee-keepers in the neighbourhood will doubtless suffer from the carelessness of this negligent bee-keeper.

If there are a number of good frames they may be preserved for future use by boiling them, as this will kill the germs of foul brood. They may then be used again, but as frames can now be made and bought so cheaply it is probably not worth the trouble. If the hives are in good condition they need not be destroyed, if some sulphur is burned in them after covering the hive as closely as it is possible. This will destroy all the germs, and afterwards the hive should be well washed inside and out with boiling water, and painted with carbolic acid, working it well into every crevice. Leave the hive empty for a month or two to allow the smell from the acid to pass away. The hives may then be used again with impunity, and there will be no further danger from foul brood unless brought from other stocks.

Procure some native black bees from a healthy neighbourhood, and if in straw skeps early in the spring early swarms may be put into the frame hives. If foul brood exists in the neighbourhood, and bee-keepers will combine among themselves, this disease may be eradicated. I find foul brood is much more prevalent in the south and west of England than it is in the northern and midland counties. Why it should be so I do not know. I do not think there is a single case of foul brood within many miles of my apiary. I hope it will continue so.

If there are still any stocks in which there is the least suspicion of foul brood I would recommend the Canadian plan of dealing with this disease. This is done by removing all the bees from an affected colony, and placing them in a clean hive with frames having a strip of guide comb to act as starter. On the evening of the fourth day remove the frames and any work the bees may have done, and insert new ones into the same hive with whole sheets of foundation. This, according to the American bee journals, is successful in curing this disease. The experiment would be worth trying in this country, but should be deferred until the weather is warmer in the spring.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

W. Barron & Son, Elvaston Nurseries, Borrowash, Derby.—*Catalogue of Trees.*

Dobie & Dicks, 66, Deansgate, Manchester.—*Seed Catalogue.*

Dobie & Mason, 22, Oak Street, Manchester.—*List of Seeds.*

W. J. Godfrey, Exmouth.—*Catalogue of Chrysanthemums.*

Hogg & Wood, Coldstream.—*Seed Order Sheet.*

J. R. Pearson & Sons, Chilwell Nurseries, Beeston, Notts.—*Garden Seeds.*

W. Wood & Son, Wood Green, N.—*Seed List.*

TO CORRESPONDENTS

All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Book (A. J.).—You did not do what you observed we asked of another correspondent—namely, send us a postcard addressed to yourself. Your other question would have been answered this week had it been written on a separate sheet. It will have attention.

Lifting Salsafy (Gaddwr).—It is always advisable to lift Salsafy and store it in sand in a cool place, but safe from frost, in a cellar or root-house. It keeps excellently in such places, provided the sand be just moist enough to prevent the roots shrivelling. The tops should not be cut off too close to the crown or root, but about an inch of the leaf-stalks left. As the season is so far advanced you may lay the plants in under a north wall, burying them up to the crowns and covering in severe weather.

Chinese Sacred Lilies (R. S. O.).—We do not see why they should not succeed outside equally as well as other of the Polyanthus section of Narcissus; but these ordinary forms after forcing do not flourish outside in cold localities. You would not lose much by planting the bulbs after the leaves have ripened, and you would at least gain experience.

Fast-spreading Water Plants (G. W.).—Two of the plants which spread quickly in water are the common Bulrush and the yellow Water Lily—*Nuphar lutea*. How these plants or any others are to prevent moisture or damp from your pond, even your doctor would find some difficulty in explaining. Plant the Bulrush near the margin, and the *Nuphar* in deeper water.

Narcissus Poeticus Ornatus (Sussex).—From your letter we should say the Narcissi were hurried too much in their early stages. For a time the plants are most impatient of heat, and if hurried many come "blind." If you had given the date of boxing the bulbs we could have formed a better idea, but judging from our own the plants ought to have remained in cool or semi-cool quarters for some time longer. Further notes will appear on the subject.

Seedling Dracaenas (C. B.).—Grow the plants in the best possible way for displaying their characteristic beauty, and when they are in the best condition in which you can show them send a few of the more promising for examination by the Floral Committee of the Royal Horticultural Society. Certificates granted by this Committee have greater weight, and invest plants with greater value than do certificates granted elsewhere. If you write to Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, London, some time prior to sending the plants he will give you all necessary information for that purpose.

Chrysanthemum Madame Desgrange (A. E.).—This variety will grow and flower year after year in the same spot undisturbed, provided the plants are liberally supplied with water and liquid manure during the season of growth, and the growths thinned. They succeed best when lifted in spring, the ground dug and manured, the plants divided and replanted. If this is done they need very little attention afterwards. Mulching with good manure is beneficial during dry weather, and a little chemical manure applied to the surface and washed in certainly assists the plants. In well dug and liberally enriched soil they seldom need other attention beyond watering.

Laelia anceps (A. H. E.).—The white material on your *Laelias* is scale. Imported Orchids are nearly always infested with this pest. They should have been thoroughly cleaned when they arrived, and if properly attended to afterwards would not have got into their present lamentable condition. If neglected much longer the plants will be ruined. Your only chance is to sponge them carefully and remove all the offensive matter with a weak solution of softsoap. One ounce of the soap will be ample dissolved in a gallon of warm water. A weak solution of Fir tree oil or other good and safe insecticide will answer the same purpose. Watchfulness is needed afterwards, and directly scale makes its appearance, which it will for some time, the plants must be sponged again. It is only by constant care and frequent cleaning of the plants that the pests can be eradicated. The better the work is done each time the longer the plants will remain clean, and the more certain you will be of getting rid of the insects.

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Journal of Horticulture.

THURSDAY, FEBRUARY 7, 1895.

PATIENCE.

THE hard weather and the snow are both compelling and educating us in patience. The commonest fault of all gardeners is anxiety to catch the early worm. The result is, not infrequently, getting caught themselves. Those who make haste to be rich are with those who are in great haste to "garden"—often found in the same category, and realise the force of the old saying, "There's many a slip," etc. The fact is Nature will not make seasons to gratify people in a hurry. We must wait on her moods and variations. What prospect could there be for seeds committed to the ground prior to the most recent hard weather? If in the south there has not been any heavy fall of snow, at least there has been enough in its lying and melting to render the soil very cold and wet. Frost, too, has been severe enough to penetrate several inches into the soil; and, therefore, in all cases out in the open, seeds—especially if they had commenced swelling—must have been seriously crippled. Even when a thaw ensues it leaves the soil in a very cold, wet, ungenerous condition for some time, so that seeds and infant plants suffer material check. I have yet to learn that any gain is found in such exceedingly early sowing. Soils must naturally be somewhat dry and seeds well protected to enable them to germinate healthily. Seedsmen suffer in reputation in this way just as those who will sow unduly early suffer loss, yet the fault lies with the gardener. Those who, having patience, wait until the hard frost and snow have gone, and the ground has become normally warm and dry, will find they have everything to gain for being prudent. That we shall have presently a splendid seed-sowing season there can be no doubt, and those who wait for it will doubtless later reap a rich reward."

Thus writes a gardener of great experience, and his remarks are as opportune as they are, generally speaking, true. One expression is possibly a trifle too comprehensive—namely, that "all" gardeners are so anxious to catch the early worm that they are habitually too far in advance with their work, or are up too soon in the morning. If all we hear is true, there are

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men who are rather prone to be somewhat behindhand in their operations, and to let the early worm very much alone. The majority, however, are animated with admirable zeal, and display commendable energy often in the face of great obstacles, to be well abreast of the work they are expected to do. These are the men who, as a rule, succeed the best, especially if with their zeal they possess knowledge; and they have certainly more right to consideration with the view to promotion or the filling of good positions than have those who strive less assiduously.

If the lives and habits of men who have won prominent, and to many, enviable positions in the gardening world could be made known, it would be seen that nine out of ten of such have forced their way upwards by their own merits—their devotion to their work, strenuous search for knowledge, persevering endeavour to excel in the multifarious duties of their calling, willingness to lend a hand wherever they could help in a needed object, and especially in habituating themselves to being up and in search of the worm early in the morning.

It would be seen, too, that they sought unceasingly not only for supremacy in the performance of material work, but had devoted more time to study than to sport in cultivating their intelligence and strengthening their reasoning powers—in acquiring theoretical as well as practical knowledge on various subjects, and thus preparing themselves—or, in other words, making themselves ready to undertake with credit anything likely to come within the wide domain of an accomplished gardener's varied duties. Most of the men of mark in gardening are not only those who have worked the hardest in their calling, doing that for which they were paid, but who have, with not less diligence, worked out their own education. They have not only brightened their spades by good and honest work, but brightened their minds. They have not been content to learn how and in what manner certain operations should be carried out, and no more, but have desired to know the reason for every particular action in each case, and not been satisfied till they have attained the object in view. Nor is this all. The very efforts they have made to that end, by research and by reading, have convinced them that to be able to take a distinct lead as gardeners they must possess much more than cultural ability. The great truth gradually dawns on them that they have to speak and to write in a manner which commands the approval of persons who are the best able to judge on matters of education and discretion.

How many young men who are being trained as gardeners are there per hundred who can, with credit to themselves and satisfaction to others, share in the art of public discussion on any subject connected with their calling? What is the percentage of probationers who can write a letter faultless in orthography and grammar, also couched in terms the most appropriate to the subject and occasion? What is the proportion to the total number, not only of those who can write an article on subjects with which they are well acquainted, that the public will have pleasure in reading in print, but who are seriously trying to do so? These are questions that our young men who hope to succeed the old in gardens which they have done so much to make famous should think about, and after thinking act—just as the writer of the note at the head of this column thought and acted when he was young.

Wholly by self-effort and devoid of "schooling," except of the most rudimentary kind, yet now, as the result of continued endeavour, not a mere hurried start and fainting by the way, he is in a position to hold his own as a worker in the garden, a debater at meetings, or as a writer in the press with most contemporary gardeners, and it is certain he could have filled a page of the *Journal of Horticulture* on the theme he has introduced if he had chosen to do so as easily as he penned his short note.

Once during his career he never thought he could do what he can now accomplish with so little effort, and this to his own

advantage in a form, and to an extent of which he never dreamt in bygone days. This is said to his credit. He prepared himself for a possible opportunity, and the opportunity came, and just because he had so prepared himself, not through any "influence" or personal favour, was he chosen to do what he does so well for others and for himself.

It was the work of patience—years of patient striving and of forethought—the same patience and forethought that form the keynote of his timely remarks. They embody sound, simple, common sense. Anyone can see that who comprehends the position. They suggest the value of forethought, imply the danger of precipitate action, indicate the value of calm consideration, yet engender hope. Let the best be made of them, for there is something in them, and then will be attained the object—the good object—for which they were, as is apparent, hurriedly penned. It is not often that a mere "dash off" provides a wider field for thought than does the note on "Patience."

AZALEA INDICA.

AN occasional visit to gardens, exhibitions, or even other countries certainly does good, and hints thus acquired add considerably to the store of knowledge. I especially remember my visit to Belgium, relating to which I have not written anything, nevertheless I consider my expenses have been saved by information gained on the treatment of certain plants, and in the material used for potting the same.

Some readers may wonder what this has to do with *Azalea indica* and its varieties. It, however, has a good deal to do with them. Previous to the visit to which reference has been made, peat was regarded as being essential for the potting of these plants. This is strictly adhered to by a large number of cultivators at the present time, and where good peat is available nothing need be said against its use, but the plants can be grown equally as well without it. My visit to Belgium convinced me that peat is not necessary in the cultivation of *Azaleas*. When the plants were examined and their treatment carefully noted, it was palpable that peat was not indispensable any more than is the firm potting to which these plants are often in this country subjected.

The leaf mould used in Belgium is gathered from the woods where it has broken up by natural exposure. Before use it is passed through a kind of circular sieve of about half-inch mesh. This forms the staple of the composts used for almost all kinds of plants.

The plants are grown during the summer in beds about 4 feet wide, consisting of leaf mould, and there appears to be no attempt made to consolidate the material about the roots to any great extent. The younger stock are simply protected during the winter by lifting them and placing their roots in leaf mould under glass. From the time the stocks are raised until their arrival in this country they are never potted. There are many places in this country where leaf mould, equal to that used in Belgium, can be obtained, and since my visit to that country no peat has been used for the plants under my charge, and I find they grow more profusely than hitherto. Our compost consists of leaf mould and good fibry loam in equal proportions, with a liberal dash of coarse silver sand. Good drainage is necessary and firm potting.

The plants should be purchased early, potted at once, and placed on some moisture-holding base, such as ashes. They require careful watering at the roots and frequent syringing. It is a great mistake to water the plants directly after potting. The compost used should be in an intermediate state for moisture, and if the material on which the pots are placed is kept moist and the plants well syringed, little or no water will be needed for a week. The house in which the plants are grown should be kept somewhat close to induce growth. In about a fortnight under these conditions they become partially established, and their white silk-like roots are visible on the surface. These plants once started into root activity are in much better condition to produce good flowers with substance than those partially established before winter, and then exhausted by flowering profusely, as they are a long time before they recover and grow satisfactorily afterwards. It is the rough treatment to which these plants are subjected that has led to the preconceived idea that imported plants rarely thrive well.

We are not just now going to enter into the summer treatment of these plants. It will, therefore, suffice for the present to say they should be encouraged to make free growth, which must be kept clean. This ought to be accomplished without resorting too

much to insecticides or fumigation, as these plants have a great antipathy to the latter. If kept clean, instead of being practically leafless when introduced into the forcing house, they should be covered with dark green foliage, proving that the plants have been properly treated and are in good health. If kept in a dry atmosphere after the completion of growth they are almost certain to be attacked by thrips. They require a cool treatment, and should be fully exposed to sunshine and the syringe freely used. The Azalea does not like fire heat, although it is often subjected to it, but rather cool, airy treatment, until the use of artificial heat is necessary. If the temperature of the structure in which they are placed can be kept 33°, that is ample, and it is better to allow it even to go a few degrees lower than dry the atmosphere in which they are grown. These plants being hardy should not be subjected during the resting period to hothouse treatment. The nearer an intermediate state for moisture, throughout the year, the soil can be kept, the more luxuriantly they grow. In Belgium a system of sprinkling with water is practised, and the leaf soil in which they are grown is never saturated, or, on the other hand, allowed to become dry.

It is a well-known fact that Standen's manure has been for years recommended for these plants. Many growers, however, have condemned it on the ground that it will eventually kill the plants if persisted in, but this is by no means the case, if used with care and judgment. Old root-bound plants with a few puny leaves only nestling round their flower buds can with two applications be restored to health next season. They will produce dark foliage, and the character of the plants in a single season become completely changed. One or two applications annually are necessary for plants in the condition described.—WM. BARDNEY.



CYPRIPEDIUM MRS. FRED HARDY.

AMONGST the many handsome *Cypripediums* that have been introduced of late, the one depicted in the woodcut (fig. 18) must be accorded a prominent position. It was obtained from a cross between *C. superbians* and *C. belatulum* and evidences of both parents are readily observable. The petals are very striking and of much substance, with purplish spots on an almost pure white ground. The lip is somewhat small, and is of a dull white flushed with rose colour, darkening towards the mouth. The dorsal sepal is white faintly tinged with green, and having rows of dark maroon spots. It was exhibited by Messrs. F. Sander & Co., St. Albans, at the Drill Hall, on January 15th, when it received an award of merit.

CALANTHE CULTURE.

I AM interested in, and should like to learn something new about growing *Calanthe Veitchi*. For some years I have been, as I thought, a successful grower of these plants, and have had spikes measuring 4 feet 6 inches and 4 feet 8 inches in length. This is considerably behind Mr. Friend's 5 feet 9 inch spikes (page 67), and I feel sure a few remarks from him as to his method of culture would be useful and interesting to many readers.—JOHN BATES, *Stone*.

PHALÆNOPSES AT HARNHAM CLIFFE.

SOME very fine *Phalænopses* are now flowering with Captain Greenwood at Harnham Cliffe near Salisbury, the strong flower spikes and vigorous growth of the plants betokening the care that is bestowed on their culture. The plants are growing in wood baskets suspended about 18 inches from the roof in a small lean-to pit. A fine piece of *P. Stuartiana* has four large leaves and a spike bearing twenty-four flowers; these are upwards of 2 inches across, the sepals and petals white, the former spotted about the base with brown; the lip is also white in ground colour, with many bright red spots on the side lobes. Several fine plants of *P. Schilleriana* deserve note, with spikes bearing from fifteen to twenty large, brightly coloured flowers, as also does a very fine form of *P. grandiflora* with blossoms of extra size and substance.

DENDROBIUM CRASSINODE BARBERIANUM.

Although closely allied to the well known *D. Wardianum*, this fine Dendrobe is distinct whether in or out of flower. The stems or pseudo-bulbs are, on the strongest plants, nearly a yard in length, and easily distinguishable by the much swollen nodes and depressions between. If these are well ripened they produce a great number of flowers, which are probably the most showy in the genus. It makes a fine display in wood baskets suspended from the roof, allowing the pseudo-bulbs to assume their natural pendent habit.

A strong moist heat is essential while growing, and during this period the plants must have an abundant supply of water at the roots, a light sunny position, and be frequently sprinkled with tepid water. Like all the deciduous species it requires little or no water after the leaves have fallen until showing signs of life early in the new year, a minimum temperature of 45° suiting it well during this period. Small plants of this Orchid are



FIG. 18.—CYPRIPEDIUM MRS. FRED HARDY.

apt to die off at the base of the pseudo-bulbs, a habit they generally lose after attaining a large size. Although to a certain extent this is a natural defect in the species, it may occasionally be caused by injudicious watering when the young growths are pushing.

At this stage a certain amount of water is needed, as the flowers are a great drain on the resources of the plants, but this is in all cases better applied by immersing the plants in water just deep enough to cover the roots without wetting the young shoots. As the season advances and the sunlight increases this caution is unnecessary, but care must still be taken that the water does not collect in the apex of the young growths.

ODONTOGLOSSUM LUTEO-PURPUREUM.

This well known and very variable species is much stronger growing than *O. crispum*, which it somewhat resembles in habit. Hardly two plants have flowers exactly alike, and although varieties innumerable have been named and described, not half of these are

entitled to rank as distinct. A good typical flower would be $3\frac{1}{2}$ inches to 4 inches across. The sepals and petals are yellow, streaked and blotched with brown and purple, the latter being in many forms deeply serrated at the margin. The lip is white or yellow with blotches and spots of brown. This is sometimes also deeply fringed.

Being a native of New Grenada and found at a great elevation, *O. luteo-purpureum* must be grown in the cool house, and the treatment advised recently for *O. crispum* will suit it admirably. This Orchid is supposed to be one of the parents of many fine natural hybrids, as for instance *O. lyroglossum*, *O. mulus*, and the beautiful *O. Wilckeanum*.

ONCIDIUM SPHACELATUM.

Although this species cannot compare with such as *O. Marshallianum* and others of that section for size or brilliance of colouring, its free-blooming qualities, combined with the fact of its being so easily grown, will recommend it to many. The spikes are frequently 6 feet in length, and the small side branches of these are well adapted for cutting for various purposes, and especially for buttonholes and sprays. The flowers are yellow, the sepals and petals transversely barred with chocolate brown. The spikes are a long time in opening, as they usually grow to the full length before branching. Should they be wanted earlier than they are likely to grow naturally, they may be pinched when about 30 inches high to hasten their opening. This of course reduces the number of flowers produced, but it prolongs the flowering season by several weeks if some are left to open naturally.

O. sphacelatum is one of the freest rooting Orchids in existence, and for this reason seldom gets out of health. The plants may be potted in three parts of sphagnum moss to one of charcoal; the best time for this operation being directly after flowering. While growing it requires the heat of the *Cattleya* house with a copious supply of moisture both at the roots and in the atmosphere; but after the pseudo-bulbs are fully matured it should be rested by withholding water but keeping the plants in the same house. As soon as the spikes can be seen in the axils of the leaves the plants must be again watered, or shrivelling of the pseudo-bulbs will be the result. *O. sphacelatum* is a native of Mexico and other parts of Central America.

DENDROBIUM AGGREGATUM.

This pretty little species is not so much grown as formerly, in fact it is not often met with. The pseudo-bulbs are clustered about 2 inches high, angular, and becoming furrowed with age; each bears a single leaf. The short, arching, many-flowered racemes are produced from the side of the pseudo-bulbs near the top during the present month. The flowers are of two shades of yellow, the lip being darker than the sepals and petals; they last about a fortnight in good condition.

A peculiarity of this species is the short time the pseudo-bulbs are growing, usually not more than five or six weeks. It succeeds well as a block plant if given a little sphagnum about the roots when established, or it may be grown in small shallow pans in peat and moss suspended near the roof. In either case it must not suffer for want of water while growing, and must have plenty of heat and moisture during this period. In winter it does best in the *Cattleya* house, and should not be dried sufficiently to cause shrivelling of the pseudo-bulbs.

The best plants of this Orchid I have seen were grown on bare blocks of teak wood with one end in a specially made pot, containing 2 or 3 inches of water. These were kept filled during the summer and empty in winter. This very desirable little species is a native of Northern India, and first flowered in this country in 1834.—H. R. R.

THE MULBERRY.

THE Mulberry is generally considered a biblical tree, but the original term *baca* seems to have puzzled the translators, and scholars agree that it is hard to say what tree is meant by the word rendered Mulberry tree. Parkhurst gives it as his opinion that *baca* means a kind of large shrub, from which is distilled an odoriferous gum; and, singularly, the Arabs have a shrub corresponding to the description which they call *baca*. Hasselquist states that the Mulberry scarcely ever grows in Judæa, very little in Galilee, though abounding in Syria and in the mountains of Lebanon.

Ovid's "Metamorphoses" upsets our evolutionary notions as regards the origin of species. In it appears the story of Pyramus and Thisbe, and reads something like this:—Pyramus, who lived in Babylon, became enamoured of Thisbe, a very beautiful virgin of that city. The flame was mutual, but their parents forbade their

marriage, so that the lovers interchanged their sentiments through an aperture in a wall which separated their houses. They agreed to meet at the tomb of Ninus, which was overshadowed by a white Mulberry tree, and without the walls of Babylon. Thisbe was first there, but the unlooked-for arrival of a lioness frightened her away, and as she fled she dropped her veil, which the lioness found and left covered with blood, having immediately before killed an ox. Meanwhile Pyramus appears on the scene, and having found Thisbe's blood-besmeared robe, concluded "she was no more," he took his own life. Thisbe, returning soon afterwards and finding the body of her lover, she fell upon the sword with which Pyramus had destroyed himself. The Mulberry tree was stained with the blood of the swains, and ever afterwards bore fruit of that colour. Shakespeare caricatures this story in "Midsummer Night's Dream."

The white Mulberry (*Morus alba*) is the most interesting on account of the leaves being used for food by silkworms. It is a native of China, and the Chinese claim the art of rearing silkworms and manufacturing silk stuffs from a remote period. This art was introduced from China into India and Persia, and though long practised, there silk was not known to the Greeks at the time of Alexander, or to the Romans until the end of the republic, and for many ages bore an enormous price at Rome. At the middle of the sixth century, during the reign of Justinian, two monks arrived at Constantinople from India, bringing with them the white Mulberry and the eggs of the silkworm. From Constantinople the white Mulberry was introduced into Greece, and in or about the year 1130 it was introduced into Sicily and Italy. About forty years later the white Mulberry was brought into France. Some records state that the white Mulberry was not brought into Italy till 1440, nor into France till 1480, and it is stated to have been little known in that country till 1564. The first Mulberry tree that was planted in France was living in 1802.

The date of the introduction of the white Mulberry into England is given at 1596, or forty-eight years later than that of the black Mulberry (*Morus nigra*). If so, there is no wonder that silkworm farming never flourished in this country, for the leaves of the white are a much better food for the "worms," and a superior quality of silk is produced than when the black Mulberry is the food-plant. Early in the seventeenth century James I. made an attempt at Mulberry tree and silk culture, and got a French nurseryman, Sieur de la Forest, to travel the eastern and midland counties of England, and in that way disposed of 100,000 Mulberry trees in 1609. Mulberry gardens were common in the neighbourhood of London at the latter part of the sixteenth and beginning of the seventeenth centuries, when it is recorded that "either from the climate, or the prejudices of the people, the growth of silk never prospered."

The black Mulberry (*Morus nigra*) is said to be a native of Persia, and has been cultivated in Europe from a very remote period. The Romans preferred its produce to every foreign fruit. The black Mulberry, according to Loudon, was introduced from Italy into England in 1548, and the first trees are stated to have been planted in the gardens at Syon House. Shakespeare's Mulberry tree is supposed to have been planted in 1609 in his garden at New Place, Stratford-on-Avon. It was cut down in 1750. Other notable Mulberry trees are Milton's in the gardens of Christ's Church College, Cambridge; two in the gardens of Pembroke College, Oxford, which, it is supposed, were planted at the foundation of the College in 1624. Stanmore Priory gardens were also famed for an old Mulberry tree. But the most antique English Mulberry tree was, and may be now, that in the old abbey gardens at Canterbury, the original stem being prostrate, but there springs from it several trunks of great size and age.

Many other old Mulberry trees in and around London are, like Thisbe, "no more," for the builder spares nothing old, and it is similar in and about most other cities and towns. Even in the country few old Mulberry trees are left to link the past with the present, which indicates the small esteem in which this very handsome foliage tree was held for ornamental and useful purposes. Nevertheless, there are several Mulberry trees in the southern parts of the country that have attained large proportions and bear enormous crops of fruit, which is greedily devoured by blackbirds, these preferring Mulberries, like the Romans, to any foreign fruit of its season.

Nearly all the Mulberry trees I have seen of any age and size worth mention were of the black variety, or rather species. This may or may not indicate that the white Mulberry requires a warmer climate. It certainly suggests its being less esteemed than the black as a fruit-bearing tree, therefore it was but little planted. It also produces fruit less freely than the black Mulberry, and on that account it would be in less request. Yet the white Mulberry forms a handsome standard, being quite hardy in warm situations

and on gravelly loams incumbent on a well-drained substratum. On deep and moist loam it grows more freely, but the growths, especially late, are liable to be damaged by severe frosts. The leaves of the hardily grown tree, that on gravelly well-drained soil, are far better food for silkworms—that is, the worms are healthier, have sturdier bodies, better coloured parts, and produce finer cocoons of the substance called silk, than caterpillars fed on the leaves of the white Mulberry tree growing in deep loam and a somewhat damp situation. This is a point worth knowing in connection with vegetable pathology, and it is still further worth recording that the worms prefer the sappier leaves to the drier foliage as food. Such phenomenon are little noted, but the importance of such items are far reaching and of consequence to cultivators.

The black Mulberry is not only the hardiest in deep somewhat moist soil, but really requires such, and a favoured situation to produce full crops of the finest fruit. It succeeds admirably in Huntingdonshire on the oolite—a light gravelly loam, 2 or 3 feet deep, with a gravelly or sandy substratum and water therein, often within 6 feet of the surface. The black Mulberry also thrives on the old red sandstone, as in Herefordshire and Worcestershire's fruit-growing, cider, and perry-making districts. Similar remarks apply to Gloucestershire, Somersetshire, and Devonshire. It also thrives on the new red sandstone, some fine trees existing at one time in the environs of York, also within that city. This is about its northern limit as a free and certain fruit-bearing tree.

On the calcareo-silicious loams, incumbent on chalk, in Hertfordshire, it produces enormous crops of fruit. In the neighbourhood of London, on the free loams overlying the London clay, it succeeds and ripens its fruit well as a standard. Similar remarks apply to all the more favourable parts of the midland counties and to Wales. In Kent and the southern counties the black Mulberry thrives in all but elevated and cold situations and soils. But in the north of England and in Scotland a warm aspect and a wall is necessary to secure satisfactory crops of fruit. In certain favoured places in these parts it, however, succeeds fairly well as a standard, and is well worth growing as a shrubby or lawn tree. It is the latest of all trees in putting forth its ample and distinct foliage; and it parts with them early in autumn, not in a littery mess prolonged over many weeks, but in a hearty manner quickly, and is as distinct in wood as in leaf from other trees.

The black Mulberry, commonly called the "Large Black," can be procured of all the principal nurserymen, especially those making a speciality of fruit trees, in the form of pyramids for gardens, dwarf fan-trained for walls, and standards for orchards, lawns, or select spots in parks. Trees of bearing size are sometimes comatable. These are of course more costly than younger ones, but they are most profitable from a fruit-growing point of view, as young trees often continue sterile for years. Once the trees commence bearing they continue fertile. The older the trees, as a rule, the finer and higher flavoured the fruit.

In the matter of pruning, standard trees need little after the crown is formed. Of course, an excessive number of limbs is undesirable; this should be guarded against by timely attention to thinning the growths. The branches will only need shortening to secure an evenly balanced crown, which is important, as the Mulberry, left to itself in its early years, pushes a few growths that take the lead and become limbs, and these become so ponderous in time that they cannot support their own weight, hence fall without apparent cause as regards wind and weather. The Mulberry, however, is more apt to be wrecked by wind than perhaps any other tree; therefore it should be carefully trained in its early years, and be given a sheltered situation.

Pyramids can be treated similarly to Red Currants, for though the fruit is produced from young shoots as well as spurs they seem to acquire the habit of bearing on spurs or short stubby shoots, and a mere shortening and thinning of the growths in summer, with the needful adjustment of them when the leaves commence falling, is all the pruning required. By cutting out overgrown spurs, or shortening so as to keep the trees fairly open and compact, pyramid Mulberry trees are singularly tractable. The chief point is to induce them to bear, which is, perhaps, best effected by lifting, firm and not over-rich soil.

Fan-trained trees on walls may be treated similarly to Plums, both of which are better for reducing the old wood frequently and encouraging young and sturdy spurs. It must not, however, be overdone, or sappy, irrepressible shoots will be the result, and it is then farewell to health and good-bye fertility. This may, to some extent, be counteracted by lifting and root-pruning; but the better way is to provide a firm soil and so prune as to maintain health and fruitfulness.

In cold localities the Mulberry is best grown under glass. It succeeds admirably in pots, producing much finer and better flavoured fruit than outdoor trees, except in the case of highly

favouring sites. The trees may be grown in either pyramid or standard form; the latter is best, as the heads are nearer the light, and the more they have of that the better.

Mulberries may also be forced. Mr. T. A. Knight was the first to show the way in this country. Established trees in pots, started with Vines in January, ripen their fruit about the same time—that is, in June. He says, "A tree . . . when fully loaded with fruit presents at least as agreeable an object to the eye as many plants which are cultivated for ornament only." Thus, Mulberries may be had by forcing, culture in orchard houses and outdoors from June to October or November; but the fruit does not keep long, requiring to be used without delay, for an apparently white fungus fastens on it soon after it is gathered. The fruit, however, ripens in succession, maintaining a supply for a month or more.

The fruit falls when ripe, and on grass plats there is little needed for its protection. But it is this bruising that gives the fungus such a ready grip of the fruit as to cause it to become white with mould in a few hours. On bare ground, which is better, perhaps, for the trees bearing after that habit is established, as manure, both in solid and liquid form, can be readily supplied as the crop and season require; a clean cloth must be spread on the ground to receive the fruit as it falls, but it is better to use small mesh netting suspended a few inches from the ground to prevent the fruit being blemished.

The tree, as before stated, is liable, as a standard, to accidents from high winds, and to lose limbs from sheer weight of leaves and fruit. Too much care cannot be bestowed on shaping the crown, so as to balance its boughs as evenly as possible. Timely attention must also be given to propping up overweighted limbs, but these are very unsightly and intolerable on lawns. It is best, therefore, to use chains. These should be attached before an accident occurs, taking the chain round the main boughs, and so that one cannot become detached without bringing away in an upward direction its opposite, which is just the thing that does not happen, therefore neither come to grief, as the one helps the other. There is no need to trouble about the chain hurting the tree, for the more it is allowed to grow into the wood the sturdier the tree becomes, and the more and finer fruit it produces. As the tree advances in growth more chain support must be provided, each time higher up the limbs, and the chains being galvanised there will be no wreckage; but as the years roll round, and generations come and go, the tree will improve, gladdening by its bounteous produce and associations.

The choicest and ripest "berries" are esteemed by some for dessert. Only the blackest fruit answer for table use, as the semi-ripe are too sharp in flavour for most palates. It should be served on its own leaves, and has a pleasing effect at dessert, as the fruit contrasts well with the yellowish leaves. The black Mulberry makes first-rate puddings, excellent pies, high-class jam, and capital syrup. The fruit is esteemed very wholesome by the medical profession. Its juice, diluted with water, is sometimes used as a beverage in fevers, from its cooling and laxative properties. The juice is used to give a dark tinge and a pleasant vinous flavour to liquors and confections. When properly fermented and prepared the fruit yields a pleasant vinous liquor, known under the name of Mulberry wine. This, however, does not keep long, but that depends upon the manufacture and the amount of spirit added. In the cider counties Mulberries are sometimes mixed with Apples to form a beverage known as Mulberry cider.

The wood of the tree is yellow, tolerably hard, and may be applied to a variety of purposes in turning and carving. It is, however, necessary to steep it in water before it is worked, in order to remove the tough and fibrous bark, which is capable of being converted into strong cordage, ropes, and brown paper. Finally, the bark of the root has an acrid, bitter taste, and is a powerful cathartic—hence it has been successfully used as a vermifuge in doses of a scruple in powder.—G. ABBEY.

THE FLORISTS' TULIP.

[By JAMES W. BENTLEY, Hon. Secretary to the Royal National Tulip Society.]

CHAPTER IV.

(Continued from page 557.)

WHEN the petals are falling and the beauty of the bloom is over all the canvas and calico screens should be removed, so that light and air can have free access to the plants. The glass-lights should, however, be allowed to remain over the beds until the bulbs are taken up. Most growers, as soon as the flowers fade, remove all protective appliances and allow the beds to have all the weather that comes, under the idea that by so doing the bulbs will be strengthened and improved. In my opinion there is no good

reason for supposing that any benefit accrues at all, for the bulbs are matured and have attained to their maximum size as soon as the plants go out of bloom; consequently the exposure is at the best useless, and if long-continued rains fall positively injurious. Such rains soak the beds, delay the operation of lifting the bulbs, and probably cause the outer skins to be cracked and decayed.

All the old writers are unanimous on the necessity of removing all seed pods, except those that have been artificially cross-fertilised by the grower, when they begin to swell, lest their growing should weaken the bulbs. Mr. Horner, I believe, was the first to point out that this idea is quite a mistaken one, as the new bulb that has been growing as the plant grew has nothing whatever to do with the nourishing of the seed pod, that office being performed by the old roots. This can be proved by digging carefully down to the roots of a seed-bearing plant, when it will be found that the bulb can easily be detached and taken away without disturbing either roots or stem, which will go on growing and ripening the seed without feeling the removal of the bulb. It is, in reality, quite immaterial whether the seed pods be removed or not as far as the bulbs are concerned; but if they are suffered to remain the plants keep alive longer, and have the labour of producing something that is not required.

The bulbs are ready for being taken up when the leaves become pale and yellowish, and the stem will bend double without snapping off; this occurs from three to four weeks after the bloom is over, which is generally at the latter part of June. It is far better to lift the bulbs at this time than to wait until later, when the leaves and stems have become dry and withered. If the taking up be done soon, the bulbs and offsets being at that time pale in colour, are readily seen amongst the darker soil as they are lifted by the hand-fork or trowel, and the stem still firmly attached to the roots and bulbs is of much assistance, for being grasped in the left hand while the fork is being carefully forced underneath the roots by the right, the whole plant with bulbs and offshoots attached, is by its means easily lifted away. The earth is then shaken from the roots, the stem broken or cut off just above the top of the bulb, leaving an inch or two adhering, and the bulb placed in its compartment in the drawer or box. Care must be taken not to tear away the old roots and stems at this time, as serious injuries are sure to ensue to the tender bulbs so treated. If the lifting be deferred until late the outer skins of the bulbs and offsets will be found to have become much darker in shade, and are so near the colour of the soil that finding them is much more difficult than at an earlier period, and from this cause probably some of the smaller ones will be overlooked altogether, and the stems, being decayed, break away at a touch, and are of no assistance. The outer skins of bulbs that have been taken up early are perfect and without cracks; they clothe the bulbs, preventing loss of moisture by evaporation, whilst those of bulbs lifted too late are always cracked, and in some cases almost entirely wanting.

Cloudy days are best for taking up, both for the bulbs and the operator; if, perforce, hot sunny weather has to be put up with it is wise to cover the bulbs as they are placed in their compartments with something cool, such as Rhubarb leaves, and if the glass has been kept over the beds that may be covered with shading also.

The bulbs, being lifted and placed in their boxes or drawers, should be allowed to dry in a moderately warm place in which currents of fresh air freely circulate. The boxes must not be piled one on another, but be spread out in such a way that the air has free access to every bulb. The rays of the sun must not be allowed to fall directly on the bulbs whilst they are drying, or indeed at any other time, or great mischief will ensue. A splendid collection was once almost totally destroyed by sun heat. The bulbs were laid out to dry in what were called cold frames. It was the summer of 1893; one day early in July was phenomenally hot, the cold frames became close ovens, and nine-tenths of the bulbs were completely destroyed, although the frames had been shaded to some extent, and air could gain admittance. When the bulbs are completely dry the drawers containing them may be returned to the cabinet, when no further attention is needed until they are cleaned previous to planting again.

Having now completed the cycle of the year I have arrived again at my starting point, with the bulbs at rest previous to planting, and have little further to add on the subject of culture. The methods of procedure recommended are such as I use myself and have every reason to be satisfied with, and although I do not pretend that what I have written on this subject of culture will make the reader a full-blown Tulip grower, still I think I may claim that it will help the earnest inquirer along in the right direction, and if carefully followed save much trouble and disappointment in his early efforts.

It is much to be regretted that no one has as yet thought the Tulip worthy of study from a scientific standpoint. A series of careful chemical analyses of bulbs and plants in various conditions of health and growth would be most useful as tending to a more thorough understanding of the character and proportions of the various chemical elements required in the soil for the highest development of the bulbs and flowers. At the same time, considering the delicate balance that has to be attained and kept in the matter of marking, I do not hope for such good results from chemical research as would be obtained in the case of Turnips, say, where the main consideration is an increase in the size of the root. Still, the analyses referred to could not fail to be of value.

I have known chemical manures such as nitrate of soda and sulphate of ammonia used for Tulips, but only in limited amounts, and so rarely that no reliable statement of their effects can be given. I certainly do not advise their use in the present state of the chemical knowledge of the subject. There is a good opening for an enthusiastic grower of a scientific turn of mind to experiment with various chemical manures and report progress from time to time to his brother growers. He would deserve their cordial sympathy and gratitude, and would no doubt readily obtain them. Some self-sacrifice would have to be shown, as his stock of bulbs would be a continually vanishing quantity, and all would have to pay an annual toll of bulbs for the good of the cause.

(To be continued.)

FORCING NARCISSI.

NOTHING is more detrimental to the forcing of *Narcissus* than trying to hurry them in the early stages of growth. By the time the plants have made 1½ inch of growth under ashes outside they should be removed to cold frames until they have turned green and display signs of growing. Up to this stage, after removing them from the ashes, they appear to be at a standstill, but they are making roots freely.

Once signs of movement are visible in the cold frames, or if severe frost compel their removal, they should be placed in a cool house where frost can be excluded. They must then be removed to a temperature 5° higher—say 45° to 50°—for ten days or a fortnight, where the atmosphere is fairly moist and the plants can be well syringed. Under these conditions they quickly display signs of growth, and they would flourish in a temperature of 50° to 60°, or even more in their last stages if wanted out as early as possible. We have been forcing the old common Daffodil in a temperature of 65° to 70°. But they should never be subjected to this heat until the flower buds are well developed. Strong heat is only advised in cases of real need, 60° being ample.

It is very easy to overforce *Narcissi* in the early stages of their growth. More bulbs of various kinds are ruined by injudicious forcing than from any other cause. Many growers err in giving liquid manure when the plants have practically no growth to absorb these soluble foods. About half an inch of decayed manure at the bottom of the boxes is the course we pursue, and never attempt at feeding afterwards, and we rarely water beyond syringing until the plants are growing vigorously.—O. M.

MELON BEAUTY OF SION.

I HAVE pleasure in forwarding a photograph of the above Melon grown here this summer. There were two plants grown side by side in a box 4 feet in length, 2 feet 6 inches in width, and 1 foot 6 inches in depth, half the latter being drainage, and the remaining portion good fresh maiden loam, to which was added a little clay and wood ash. One of these two plants had its point taken out as soon as it reached the trellis, taking three shoots on the cordon principle.

The reason this plan was adopted was to secure four or more flowers, if possible, ready for fertilisation on the same day (a difficulty often experienced on the single cordon system). This plant ripened its fruit at the same time as the plant which was allowed to grow unstopped, owing to the fact that the lateral growth in the latter case was more than that of the other. This mode of procedure seems to be effectual, there being twenty fruits set on these two plants, of which eighteen were allowed to remain, and were very handsome though not large, weighing 36 lbs., or an average of 2 lbs. each. These plants were grown with their foliage over a tank of water, which would doubtless have been much against them had the weather been very dull during the period of flowering.

It would be interesting to know from others who may have grown this variety if it is susceptible of cracking. We have grown all our Melons this year in boxes of wood and slate with excellent results, having proved that good crops of Melons may be obtained from a much less amount of soil and bottom heat than was formerly supposed. It is needless to add that careful and diligent attention must be given to watering and feeding when the roots are confined. Through this I feel satisfied that the fear and risk of canker is greatly reduced.—J. SNELL, *Grimston Gardens*.

[The photograph sent represents a crop such as could only have been produced by thorough cultivation, but the picture was not sharp enough to permit of successful reproduction.]



EVENTS OF THE WEEK.—Events of horticultural interest have not been very numerous in the metropolis during the past few weeks, but there will soon be an awakening. On Friday next the annual meeting of the Royal Gardeners' Orphan Fund will be held at the Cannon Street Hotel. The Committees of the Royal Horticultural Society meet on Tuesday, 12th inst., at the Drill Hall, and the general meeting of the Society will take place on the same day at 3 P.M., in the Society's rooms at 117, Victoria Street.

— **THE WEATHER IN LONDON.**—Pronounced wintry weather has prevailed in the metropolitan area during the past week. Snow has fallen on several days, while the frost has been very severe. This morning (Wednesday) the thermometer in Fleet Street registered 10° of frost at one o'clock, and in the northern suburbs at eight o'clock there were 15°, while at the time of going to press in the afternoon our thermometer showed 6° of frost.

— **WEATHER IN THE NORTH.**—Frosts of from 9° to 17° continued last week up to Friday, when a partial thaw took place in the afternoon. This continued throughout Saturday and Sunday, with occasional sleety showers; but little effect was made on the snow, even on the lower grounds. On the morning of Monday 5° of frost, and on that of Tuesday 6° were registered, and Winter seems again to be tightening his hold.—B. D., *S. Perthshire*.

— **THE TOMATO—FRUIT OR VEGETABLE.**—I have read with interest correspondence on this subject. It would be a good thing if the matter was decided one way or the other. At the Plymouth Chrysanthemum show last November a local exhibitor had in his six dishes of fruit one of Tomatoes, also one of Nuts, and was adjudged the first prize, though he had no competitor in the above class. It would be interesting to learn what other exhibitors have to say on this point. I consider the Tomato should be classed as a vegetable.—JAMES MAYNE, *Bicton*.

— **BROWN LINNETS.**—The rapidity in which a flock of these birds will strip the foliage from a bed of green vegetables is simply amazing. During severe weather when food is scarce they leave their moorland haunts in flocks, and woe unto a bed of spring Cabbages that happens to lie in their path. In a few hours, if unnoticed, not a leaf will be left whole, and so tame do they become by hunger, that if a gun is fired in their midst many of them will not rise, and in case of so doing will be back again to their plunder almost immediately.—G.

— **THE GARDENERS' ROYAL BENEVOLENT AND ROYAL ORPHANAGE INSTITUTIONS.**—The gardeners of Worcestershire are bestirring themselves in a novel and praiseworthy manner on behalf of the above excellent institutions. A thoroughly representative and well attended meeting of the gardeners and nurserymen of the county was held at Worcester on Saturday last. The claims and advantages of these charities were pointed out and discussed, also the fact that these Institutions paid in the shape of pensions considerably more money than was subscribed annually in the county taken by itself. It was shown also that the sum of 6d. per week contributed by any person constituted full membership to both societies—viz., 1 guinea per annum to the Benevolent, and 5s. annually to the Orphanage Fund, with the result that many subscribers' names were promised forthwith. Furthermore, the meeting resolved itself into a general committee, undertaking to canvass every individual gardener and nurseryman in the county. Directories were produced and a roll call instituted, each person present undertaking to bring personal influence and acquaintanceship to bear on those residing in his district. It was also proposed and carried that each individual gardener should respectfully call the attention of his employer and other patrons of horticulture to the movement. Progress to be reported that day month. General details were completed, and great enthusiasm and unanimity prevailed. The meeting separated after expressing the wish to merit the ejaculation, "Well done, Worcestershire!" Will other counties do likewise?—W. C. [This county co-operation on behalf of our gardening charities is a splendid idea, and the action taken is highly commendatory.]

— **MR. S. DEADMAN**, for many years head gardener to the late J. Whitborne, Esq., J.P., Gorway, Teignmouth, S. Devon, has been appointed instructor on horticulture at the South-Eastern Agricultural College, Wye, Ashford, Kent.

— **CURTIS, SANFORD & CO., LIMITED.**—We have received the prospectus of this company, which has been formed for the purpose of acquiring and further developing the well-known business of Rose growers, nurserymen, and florists of Messrs. Curtis, Sanford & Co. of the Devon Rosery, Torquay (established by the late Mr. Henry Curtis in 1844), and the business of fruit and vegetable growers established by the South Devon Fruit Farm Syndicate at Cockington, near Torquay.

— **ST. PAUL'S DAY.**—I am rather puzzled by the article on page 102, of January 31st. I had always understood that Candlemas Day (February 2nd) was the weather criterion day, and the Latin seems to confirm this.

"Si sol splendescat Mariâ purificante,
Major erit glacies post festum quam fuit ante."

If Candlemas Day be fair and bright,
Winter will have another fight;
If Candlemas Day be cloud and rain,
Winter is gone and will not come again.

The two days are so near that probably the same has been predicted of both of them.—A. C.

— **PRESENTATION TO MR. R. FRISBY.**—A meeting of the members of the Preston and Fulwood Horticultural Society was held recently with the object of presenting a silver-mounted ebony walking stick and tobacco pipe and pouch to Mr. R. Frisby, gardener at Worden Hall, Leyland, who is about to leave the neighbourhood owing to the death of his employer. There was a good attendance, and the Mayor (Councillor W. H. Woods), in making the presentation, said Mr. Frisby had done much to bring about the success of the Society, and no doubt he would be very sorry to leave them. Mr. Frisby briefly responded and wished the Society every success.

— **THE HESSLE AND DISTRICT GARDENERS' AND AMATEURS MUTUAL IMPROVEMENT SOCIETY.**—The above Society held their fortnightly meeting in the Parish Schoolroom on Tuesday, January 29th, when Mr. Thurston, of Hesslewood Gardens, read a very instructive essay on the cultivation of the Carnation. The essayist remarked that the Carnation succeeded best in a light porous soil; he also mentioned the different pests that the Carnation is subject to the attacks of and the best remedies for their eradication. A hearty vote of thanks to the Chairman, Mr. J. P. Leadbetter of Tranby Croft, and the essayist brought to a close a very pleasant evening.—S. R. C.

— **DEATH OF MR. M. T. BROOMHEAD.**—Another blank has been made in the office staff at 171, Fleet Street, by the lamented death of the above gentleman. The older among our readers will remember that a few pages of this Journal were devoted to poultry some years ago. These did not suffice for the bird fanciers, and to meet their wishes the first penny weekly paper devoted to their interests was established and entitled "Poultry." It speedily became a pronounced success. Of this paper Mr. Broomhead was the editor until his death last Thursday, but he had not been able to attend the office for some months, his son, Mr. F. Broomhead, ably discharging his father's duty there. By the zeal, ability, and industry of our departed friend "Poultry" became the influential and popular organ it is to-day. An eloquent tribute to the memory of Mr. Broomhead is recorded in the following words by the staff artist of the paper, Mr. Harrison Weir:—"Another light has gone out, another good, true, and honest man has gone to his rest, who when with us was deeply, sincerely, and deservedly respected, and worthily regarded, and so thus it is that his loss cuts the more keenly into our sorrowing hearts. It seems but the other day, though it is years, so quickly flies the time, yes! but the other day that he, bright, hearty, strong, full of life, vigour, and hope, accepted the editorship of the then almost new paper, "Poultry," and that with the full intention of making it successful. This he has done, and has left it to his editorial credit with a large and increasing circulation and a world-wide reputation as being conducted with full ability, and on honest, straight, and truthful lines. This alone is, and will be, a lasting and honourable testimony of the uprightness of the man, and no mean monument to his memory." We can only add to these well-merited words that we mourn the loss of a faithful friend, a good, true, and genuine man, and share largely in the deep and widespread sympathy that is felt for his widow and family in their great bereavement. Mr. Broomhead's death was brought about by a chill following an attack of influenza. He was only forty-eight years of age.

— THE annual general meeting of the ROYAL GARDENERS' ORPHAN FUND will be held at the Cannon Street Hotel on Friday, February 8th, at two o'clock, P.M. It has been arranged (after the annual meeting at the Cannon Street Hotel on Friday, February 8th) for the Committee to have a friendly dinner together at Anderton's Hotel, Fleet Street. Mr. John Harrison, of Leicester, will preside.

— PRESENTATION.—Mr. Hollingworth, who for the last five years has held the position of general foreman at Alton Towers, at the time of his retirement a few weeks ago was presented with a handsome case, containing a set of gold cuff-links and studs, by the young gardeners employed in the establishment, as a token of the good fellowship which had existed during the period he had been amongst them, prior to his obtaining a position on the office staff of the *Journal of Horticulture*.—J. C.

— THORNBURY HORTICULTURAL SOCIETY.—A meeting of the members of this Society took place on January 28th. Mr. George Nixon presided, and there were also present the Rev. G. B. Browne (Iron Acton), the Rev. H. R. Wilkins (Oldbury-upon-Severn), Messrs. H. P. Thurston, C. Fry, C. Pitcher, W. O. Chambers, J. Bruton, F. Williams, and E. J. Underhill, Secretary. The accounts, which showed a balance in the bank of £37 15s., were examined and approved, and it was decided to hold the next annual exhibition in August.

— THE MIDLAND CARNATION AND PICOTEE SOCIETY.—The fourth annual report of this Society, together with the schedule of prizes and rules for the present is to hand, and contains much valuable information. Financially the Society is in good condition, the balance-sheet showing cash in hand of upwards of £46, exclusive of unpaid subscriptions and other sums, estimated to amount to about £12 10s. The prizes offered for competition at the show on July 31st and August 1st are liberal, and should be provocative of good exhibits. The lists of the best varieties in the various sections cannot fail to be of the greatest utility, and the Committee is to be congratulated on their production. We wish the Society continued success, and trust that Mr. Wm. Dean may be spared many more years to hold the hon. secretaryship, than which none other is better able to fill.

— READING HORTICULTURAL SOCIETY.—The thirty-eighth annual meeting of this Society was held, by permission of Messrs. Sutton & Sons, at the Abbey Hall. Mr. J. F. Ferguson presided. Mr. W. L. Walker read the annual report, which stated that the result of the year's work was satisfactory generally, and would justify the holding of two exhibitions during the current year. It would be remembered that the 1893 report stated "That it was in contemplation to hold a bulb or Rose show in 1895," and it had now been settled to hold an exhibition of Hyacinths and other flowers in the Queen's Hall on March 19th next, and should it prove a success a spring and autumn show will probably be held each year. Messrs. Sutton & Sons, with their usual liberality, have again provided the whole of the prizes in the fruit division of the schedule for the coming August show. The statement of accounts showed that the sum of £122 was carried forward as balance in hand. A discussion ensued as to the advisability of amalgamating the horticultural and Chrysanthemum societies, but no definite action was taken. Mr. W. L. Walker was re-elected Hon. Secretary.

— WAKEFIELD PAXTON SOCIETY.—At the usual weekly meeting of the members of the Paxton Society, Saturday evening, Jan. 26th, Mr. Brown of the Outwood Cemetery presided, and Mr. B. Whiteley occupied the vice-chair. There was a good attendance of Paxtonians, most of whom had come direct from the Town Hall, where they had been listening to the first of a series of lectures on horticulture by Dr. Clark of the Yorkshire College, Leeds. The essayist was Mr. George Hudson, head gardener at Woolley Park, and his subject was "The Cultivation of Flowering Plants." Mr. Hudson illustrated a thoroughly practical essay by a grand collection of flowers of many varieties which were greatly admired. He remarked at the outset that his subject covered a wide field, and could not be exhausted in one paper, and he intimated that his essay was intended for amateur gardeners, who deserved every encouragement. Wherever they saw a small greenhouse in connection with a little house they might generally depend on finding "love at home." Mr. Hudson then proceeded to mention a number of flowering plants which he recommended amateurs to grow, prefacing his remarks on his variety by impressing upon his hearers not to keep their greenhouses too warm, not to neglect ventilation, not to "coddle" their plants, and not to crowd them. A vote of thanks to the essayist closed the meeting.

— THE WEATHER IN HERTS.—The weather during the past month has been very wintry in character, rain, frost, and snow being very abundant. On the 19th, 0·91 inch of rainfall was registered, and on the 27th as much as 23° of frost was experienced. I have registered 2·29 inches of rainfall against 2·00 during January, 1894.—E. WALLIS, *The Gardens, Hamels Park, Buntingford*.

— THE WEATHER IN DERBYSHIRE.—We are a good foot deep in snow, with tremendous drifts; some of the roads are not cut through yet for traffic; our rural postman had to give up getting near one part of his district. Nothing seems to have suffered with the severe weather outside above the snow line. Ivy and creeper-clad walls look fresh; Tea and Noisette Roses on the same are plump. We have bright sunshine and an Italian sky most days. The sun is quite hot now, 9 A.M.—GEORGE BOLAS, *Hopton Hall*.

— RAINFALL AT ABBOTS LEIGH, HAYWARDS HEATH, SUSSEX.—The total rainfall during January was 2·37 inches, being 0·24 inches above the average. The heaviest fall was 0·58 inch on the 19th. Rain or snow fell on sixteen days. The maximum temperature was 52° on the 20th, the minimum 17° on the 27th. Mean maximum, 37·26°; mean minimum, 28·09°; mean temperature, 32·67°, which is 2·82° below the average. There has been continued frost and more or less snow since 22nd, and on the 1st February no signs of it breaking up.—R. I.

— JANUARY WEATHER AT STIRLING.—The rainfall for the last month was 1·410 inch, which fell on fifteen days; the greatest fall on any day was 0·410 inch on the 16th. The mean maximum was 36·3°, and the mean minimum 23·6°. Highest maximum, 45·4° on the 22nd; highest minimum, 35·3° on the 15th. Lowest maximum, 18° on the 10th; lowest minimum, 7·3° on the 10th and 7·2° on the 11th. Frost was recorded on twenty-nine nights. The 15th was the coldest day, with a mean of 17·4° of frost for the twenty-four hours. Altogether a very cold month, but the snowfall has been very light in comparison to other parts of the country; not over 4 inches fell for the whole month.—G. M'D.

— JANUARY WEATHER IN SOUTH WALES.—The following is a summary of the weather here for the past month. The number of days on which rain fell was twenty-one, and the total depth 6·40 inches. The maximum was 1·00 inch on the 12th, and the minimum 0·02 on the 26th. Snow fell on twelve days; and the sun shone on twenty-five days. Total for the month, seventy-four hours twenty minutes, the maximum being seven hours on the 28th, and the minimum five minutes on the 14th. There was frost on twenty-six days, and rain, hail, snow, and lightning on the 24th. It has been a very cold month throughout: snow has been on the ground since December 29th, and no signs of going now. The wind has been from the north and east for twenty-eight days.—W. MABBOTT, *The Gardens, Gwernllwyn House, Dowlais, Glamorgan*.

— THE WEATHER AT BELVOIR LAST MONTH.—We had snow on the ground the whole of the month, with the exception of 19th and 20th; heavy fogs on 15th and 16th; and a thunderstorm on 23rd. The wind was in a northerly direction fifteen days. Total rainfall 3·23 inches, which fell on twenty-five days, the greatest daily fall being 0·99 inch on 20th. Barometer—highest reading 30·310, at 1 P.M., on 30th; lowest, 28·716, at 1 P.M., on 14th. Thermometer—highest in shade 42°, on 18th and 19th; lowest, 10°, on 11th and 12th. Mean daily maximum, 35·22°; mean daily minimum, 25·48°. Mean temperature of the month, 30·35°; lowest on grass 5°, on 12th. Highest sun temperature 86°, on 26th. Mean temperature of the earth at 3 feet deep, 38·25°. Total sunshine, 58 hours 50 minutes. There were ten sunless days.—W. H. DIVERS, *Belvoir Castle Gardens, Grantham*.

— WOODBRIDGE HORTICULTURAL SOCIETY.—Though the last show day of this enterprising Suffolk Society was very wet, the report shows a balance in favour of the Society of £11 9s. 5d. The Committee refer approvingly to the fact that the £25 challenge cup for Roses was won last year by one of the leading nurserymen of the eastern counties. The Committee are now contemplating making arrangements for a much more interesting exhibition of table decorations, decorated fireplaces, mantel borders, also centre epergnes and specimen glasses. Several ladies have promised their assistance by offering special prizes, and the Committee hope that by providing a special tent for this department only it will meet with general approval; they have also arranged to leave this department on view till eight o'clock in the evening. Mr. John Andrews is the Honorary Secretary.

— THE ACADEMY OF SCIENCES.—Mons. Cornu, the Director of the Botanical Garden at the Jardin des Plantes, Paris, has been elected a Vice-President of the Academy.

— THE WOLVERHAMPTON SCHEDULE has just come to hand for the next exhibition in July, and is a very generous one. For 116 stove and greenhouse plants, £20, £15, and £10 are given. For groups, £20, £15, £10, and £5. Roses have liberal encouragement, and this year a new Rose class is added for "the most decorative arrangement of Roses," in a given space. Mr. Paul Lutz of Wolverhampton gives handsome prizes for "the most tasteful arrangement of Pansies and Violas," and the Society has greatly increased their fruit prizes for this year. It is altogether a very liberal schedule, and the Messrs. Green, senior and junior, who work so energetically, deserve the cordial support of all horticulturists.

— SOWING ONIONS UNDER GLASS.—After reading the excellent remarks by R. P. Brotherston in last week's issue (page 90), I may say I thoroughly agree with all he says on this subject. For many years now the Onion maggot has almost run riot through different parts of the country, and various remedies have been propounded. In large gardens experiments may readily be made, but to those who have only a limited space they become almost dangerous; hence I hold that any remedy calculated to throw light on this question of the Onion maggot ought to be ungrudgingly given. If to some the system of sowing under glass does not commend itself entirely, they may at least give it a trial, however small; and, with Mr. Brotherston, I can safely say that the results, either in combating the maggot or in insuring fine bulbs, will not be disappointing. The sorts we grew last season to very fine dimensions were Sutton's A1 and Exhibition, Cranston's Excelsior, Ailsa Craig, and Cocoa Nut—all fine keeping varieties.—R. P. R.

— THE BIRMINGHAM GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—On the 28th ult. the fortnightly meeting of this Society was held at the Athletic Institute, Birmingham, under the chairmanship of Mr. W. B. Latham, when Mr. A. W. Wills, F.C.S. (the President) of Wyld Green, Erdington, delivered an interesting and instructive lecture on "Welcome and Unwelcome Guests." Mr. Wills prefaced his subject by observing that on a former occasion he called attention to some of the mutual relations of plants and insects, pointing out how the perpetuation of most species of flowering plants depend on their effectual fertilisation, how this is accomplished by insects, and how Nature usually favours allogamy and discourages autogamy, or fecundation of the flower by its own pollen. He then proposed to draw attention to a kindred subject—namely, the manner in which the structure and disposition of these parts of the plant are arranged for the protection of the flowers, and in which the structure of the flowers themselves conduces to the encouragement of the visits of insects whose access is desirable, and to the discouragement of those whose access is disadvantageous; his remarks, as he himself desired to intimate, being chiefly based on a charming book by Dr. Kerner, Professor of Botany at Innsbruck, entitled "Flowers and their Unbidden Guests." We hope to publish a digest of Mr. Wills' lecture in a future issue.

— THE SHREWSBURY SCHEDULE.—This is now being issued, and is truly a liberal one, the prizes being so heavy generally. In Class 1, for a group of plants, £62 is offered in four prizes, and £45 in Class 2 for twenty stove and greenhouse plants, in two prizes. The display of floral arrangements, in a space 12 feet by 5½ feet, has always been a great feature here, and in the new schedule the prizes are considerably augmented to £12 10s., £10, £7 10s., and £5, a total of £35. The Society celebrates its coming of age this year, and a new class for fruit has been specially added in honour of the occasion. It is for a decorative arrangement of fruit, "A collection of twenty-four varieties to be staged in a space 10 feet by 4½ feet. Lycopodiums and other trailing plants, Ferns, and foliage may be used for effect; tasteful arrangement being considered by the judges in addition to the quality of the fruit." First prize, £20; second prize, £15; third prize, £10; fourth prize, £6; a total of £51. Instructions to guide exhibitors in this class are given, and the Committee hopes that this class may meet with the approbation of our leading fruit growers and lead to some good exhibits. In addition to this class there are two other classes for collections of fruits, besides the very liberal prizes for Grapes and other fruits as usual. Nearly £800 are given in money and medals as prizes, and no wonder the Shrewsbury Executive deserve such grand displays, especially with two such experienced Hon. Secretaries as Messrs. Adnitt and Naunton, to whom the work of the show days seems to be so easy, so excellent are their arrangements.

— KINGSTON GARDENERS' ASSOCIATION.—The members of this body met on January 30th for the purpose of taking part in a discussion arising out of a series of eight questions on flower gardening, to which Messrs. Pitcher and Plumb undertook to furnish replies. This course was thought desirable, as there seems to be much objection on the part of the members to the having too many papers and to the preparing of them. The above named members dealt with the questions so fully and furnished such complete replies, that with the discussion which ensued the evening was fully occupied. Mr. Morton, Maple Lodge Gardens, presided. At the next meeting, should no complete paper be furnished, a similar discussion arising from answers to questions will be promoted.

— THE SALE OF NOVELTIES.—A novelty in flowers, fruits, or vegetables may be a new species, or a new variety, or it may be an improved selection of an already popular sort, and in many cases it is something that was in cultivation long ago, but only in a limited way. By booming an "old" but little known plant as a novelty, says an American contemporary, is the only way to make it popular quickly; if it is a good thing it will sell better the second year than it did the first, and still more of it will be sold the third year, and so on. It sometimes happens that the dealers themselves have to drop a sterling novelty simply because they cannot get up a stock of it quick enough or cheap enough to supply the demand created by advertising it prominently at paying rates.

— BIRKENHEAD GARDENERS' IMPROVEMENT SOCIETY.—We are about to start a reading-room in connection with our newly inaugurated Gardeners' Mutual Improvement Association for Birkenhead and district, the room to be open each evening (Sunday excepted), from 6 to 10 P.M. for the use of members only. A botany class is to be held one evening each week, and another evening will be set aside to coach any willing to study for the examinations of the Royal Horticultural Society for their certificates of efficiency. One of the primary objects of the association is to secure a library of good standard works on horticultural subjects. This, of course, will take time, though doubtless many of the gentry of the district who employ gardeners will be willing to assist when they are assured that the gardeners themselves are really in earnest, and are not above making some little efforts among themselves for their own mutual improvement.—T. D. SMITH.

— THE GERMINATION OF MUMMY WHEAT.—In January "Nature Notes," Mr. W. Carruthers, F.R.S., has again confuted the ridiculous statement concerning the germination of seeds which have laid dormant for thousands of years—one that still appears in books and magazines, though its erroneousness has been pointed out. In some instances the notion has arisen from the germination of seeds which have been accidentally attached to mummies or mummy cases in transit. Other instances are explained by the roguery of natives, playing on English credulity. The absolute impossibility of it is proved by the fact that all seeds and fruits that are found in ancient coffins of Egypt appear to have passed through the fire. Besides careful experiments have been made upon seeds, and few retain their vitality more than two score or three score years. In one exceptional instance a seed of a Nelumbium germinated which had been kept for 150 years in a museum, but this has a specially hard covering.

THE CHARLES COLLINS' FUND.

WE have great pleasure in announcing the following subscriptions received during the past week towards this very deserving case:—

	£	s.	d.		£	s.	d.				
Amount previously ac-				H. W. Ward	...	0	5	0			
knowledged	27	7	0	E. Beeton	...	0	2	0	
E. T. Cook	0	10	6	W. Iggolden	...	...	0	5	0
Wm. Robinson	1	1	0	E. H. M.	...	...	0	10	0
W. L. F., Chelsea	0	2	6	R. Dean	...	...	0	10	6
S. Pettigrew	1	1	0	W. Strugnell	...	...	0	3	6
G. Bunyard...	0	10	6	J. B. Riding	...	...	0	10	6
Wm. Paul & Son	1	1	0	Geo. MacLeod	...	...	0	5	0
R. Hooper	0	10	0	W. H. Cox	...	...	0	2	6
Pearson	0	10	0	G. W. Cook	...	...	0	10	0
("Gardeners' Chronicle")	0	2	6	H. A. Needs	...	...	0	5	0
A. F. Rendell (second sub.)	3	0	0	A Member of N.A.G.A.	...	...	0	5	0
A Friend, per G. Gordon...	0	10	6	Miss L.	...	...	0	2	6
W. J. Godfrey	0	10	6	A. J. Foster	...	...	0	2	6
Y. B. A. Z.	0	10	0	Ladywell Horticultural	...	...	0	4	6
E. Mawley	0	10	0	Society (second sub.)...	...	...	0	5	0
A Sympathiser	0	5	0	S. Reece	...	...	0	5	0
A Reader's Offering	1	0	0	H. Budge	...	...	0	5	0
S. Deadman	0	10	6	"A Friend," per S. Reece...	...	...	0	2	0
An Admirer	1	0	0	Fleet Street Compositors	...	...	0	10	0
Colonel Page									

THE CULTIVATION OF THE MELON.

THE Melon has been with us about 400 years, and well may the present staff of gardeners look with interest on the increased cultivation of the last fifty years. I well remember when I first learnt the way to obtain the highest awards for Melons; it was at the Reading Horticultural Show in 1886. I was once fortunate enough to have a few words of advice from one of our most noted growers, Mr. T. Lockie, who remarked—"What a mistake gardeners make in drying off Melons for improving the flavour of the fruit."

It would be useless to deny that for general market work the Melon has not the same advantage as the Tomato, as we are not all lovers of Melons, but with the increased demand they can, with good cultivation, be made very profitable, provided a suitable one for market work is obtainable. For market purposes we must have size with quality. For this purpose it would be advisable to cross a large Melon with one of a better flavour; for instance, Conqueror crossed with Hero of Lockinge should be good, and only these two should be grown together at the time, or the cross might throw several varieties the next season. Great care should be taken to choose a healthy staminate flower on the parent plant, and a strong pistillate flower, inserting the pollen and allowing it to remain.

We will now take the method of cultivation in houses. Having selected a variety suitable for our purpose, propagation next demands attention. The seeds may be sown at different dates, according to heat at command, commencing from the shortest day until the end of June. Where we have a good supply of heat the first-named date would be most suitable for those who require early fruits. Clean, small, 3-inch pots are most suitable to raise the young plants in. The crocks used for drainage should also be clean and sweet; insert a large one over the hole so that it allows the water to pass through freely, then cover over with smaller pieces in two layers. The pots should be filled with soil consisting of three parts of good loam, one of sand and leaf mould, no manure at this stage being used. Press down moderately firm, make a small hole half an inch in depth, fill with sand, then insert a good sound seed. The next object is to induce the seed to germinate quickly. The pots may be plunged in some moist material, then placed on the pipes. In a few days the seedlings will appear, and from this time to the ripening stage no plant requires more attention.

The preparation of the soil for planting in should now be proceeded with, and the bed must be made up so that by the time the plants are ready to put out the soil will be of the same temperature as the house. The material for this purpose should consist of fresh loam, broken up to the size of a hen's egg. To this add a small quantity of lime rubble, leaf mould, and road grit in proportion to the texture of the soil. We do not recommend any farmyard manure being added, as it often induces too free a growth. What we much prefer is bonedust, using about 1 gallon to two barrowloads of soil. In making the bed, good drainage should not be lost sight of. One of the best plans is to have about 2 feet of long manure pressed down firmly; on the top turves placed grass downwards, or faggots may be used in the place of straw, or, what is better still, strong boards raised on pots or boxes, with crocks or brick rubbish spread on the surface, then the turves. On the top of this should be placed some feeding material, such as half-inch bones or hoof parings, then the soil. The compost must be firm, as this encourages the firm wood so desirable in Melon cultivation.

When the plants have attained the third leaf is the best time to plant out, and this should always be done with great care, never giving the Melons a check. The best time to plant is just before closing the house in the afternoon, as the plants then rarely if ever flag in the leaves. Growers differ greatly as to the depth of planting, but if the plants are stocky we prefer to plant them up to the seed leaf. If they are leggy the plants should not be put in deeply, but the ball should be placed a little way off the place where the plant is required, and the stem laid in about 2 inches in depth. Place a stake by the side of the plant and make fast to the nearest wire, then secure the stem to the stake, allowing room for swelling.

Watering may be considered one of the most important points in Melon culture. It has been said, and rightly so, that Melons are lovers of water, but more failures in cultivation may be traced to giving water at the wrong time than to any other cause. Only by careful attention can this part of the work be successful. Never water Melons until convinced the plants require it, and then let it be in the morning, in wet or dull weather withholding it altogether. The water, too, should always be of the same temperature as the house, as cold water is very injurious to the roots. When the Melons are first planted little or no water is required, syringing the plants being sufficient unless the soil in the bed is dry, when a little may be afforded, and it should last for several days. When the plants have covered the trellis, and the fruit begins swelling, they will require more water than at any other time, giving it only sparingly when the fruits are netting, and when the ripening stage is reached only sufficient to keep the foliage green.

Syringing is another important matter. Young plants should be syringed freely every morning, and on bright afternoons. As growth extends syringing should decrease, withholding it when the fruits commence netting, relying then on damping the house to keep insects in check. Airing is also an essential point, and no favourable occasion

should be missed to admit as much air as can be given without causing a draught, especially in the morning before syringing, closing the house for a few hours early in the afternoon after having first syringed or damped down, and if the evening will allow give a little more air for an hour to let all moisture escape. The temperature, too, is another point that must not be neglected, and must be regulated according to the external air. If a temperature of 55° to 60° can be maintained at night, and from 65° to 70° through the day during January and February, this is quite sufficient, raising it according to the season later on. Feeding Melons is often carried to excess, as if the material they are planted in is good this is generally sufficient, although weak liquid manures are of great service in the swelling stage to plants carrying a heavy crop.

In training, the growths should never be allowed to become crowded, and the main stems must be given ample room, as unless the wood properly matures only poor results may be expected. We practise the method of growing three plants to a light, running up five leaders in all. The main leader may be allowed to grow without check, starting the side shoots from the first wire; all laterals showing fruit are stopped at the first leaf beyond the fruit, removing all others entirely, rubbing a little quicklime over the place so as to heal it quickly and prevent decay. When the leader reaches to within a foot of the top wire pinch out the point, and as soon as sufficient fruits commence swelling for a crop cut away all the spare laterals and fruit. The best time for setting the fruit is the middle of the day, as then the pollen is drier than at any other time. Some growers keep the house very dry at this stage of the work, but it is bad practice, as it encourages the increase of red spider, and rather hinders than helps the fruits to set.

In selecting the crop it is always advisable not to leave too many fruits on the plant, eight to a light being a fair average, but in this we must be guided by the plants. When the fruits are selected always choose them as nearly of a size as you can, then remove all the other growths as before stated. Tie secure the fruits with good strong bass to the wire, and when in the netting stage place four bands of bass crossed underneath the Melons and make firm to the trellis, then place one piece around the fruit, seeing that there is room for the Melons to swell. When the fruits approach the ripening stage expose them to the sun by tying the foliage back, as this with abundance of air is of great assistance in producing good flavour, a point so essential in Melons. Melons at this stage should be examined often, as when the fruit has cracked around the stem it should be removed to a cool place. Some people allow the fruits to be placed on shelves in the greenhouse, but this is wrong, as unless the flavour is grown in a Melon no sun after it is cut will put it there, whereas when stored in a cool place fruits will keep a much longer time. Never hurry Melons that are intended for show through the ripening stage, and endeavour to keep the plants healthy with good foliage. Choose a fruit that finishes on the plant, and is ready to cut just two days before the show unless it is Hero of Lockinge, which requires four days, as some Melons are ready before others, and we can only gain this knowledge by experience. I remember on two occasions taking first prize for Triumph straight from the plant. If very early Melons are required they should be grown in pots under similar conditions, as by this method fruits may be had several days earlier.

I will now draw attention to Melons grown in a cool house, and for this purpose seeds should not be sown until the beginning of March, in fact my best results have been obtained from seeds sown in April. It is very important that the young plants are not forced on too quickly. Make a small hotbed in one corner of the house with short hot manure pressed firmly down; cover with 4 inches of soil. Plunge the pots, but remove them to the surface as soon as the seeds have germinated, and if the weather is bright and warm the next day place them on the shelf near the glass, doing this at night, and giving a little shade next day. The soil recommended previously would also be the best to use for this purpose, but we would recommend a good hotbed being made, say 3 feet wide and 3 feet high of short manure, and made quite firm. Then place on turves and soil as before. The plants must receive careful attention for at least a short time every day, and an experienced eye will quickly detect anything going wrong with the Melons. Good crops can be grown under these conditions, as the photo (fig. 19) taken in 1892 of my house at Andover will testify. It was taken when the fruits were just beginning to net, and no less than 150 were grown and ripened, the house only measuring 20 feet by 10 feet. We prefer the wires about 9 inches from the glass, and the same distance apart. Watering and syringing must be done with great care, and only when the weather is suitable; from four to five good waterings will be found sufficient to carry the crop.

To those who have only frames to grow Melons in, and have not even a cool house at command, I would advise great care being taken in the preparation of the hotbed, as this is the most important part of the work. Procure, if possible, some good manure, throw it into a heap, which turn over every other day for a week, adding water if the manure is at all dry. Then make up the bed a foot wider on all sides than the frame, treading well at every layer, and leaving a few barrowloads to fill in the frame. Then insert the turves as before, placing about 9 inches of soil on this, and tread firmly down, especially at the corners and sides, and when this is done the surface should be about 6 inches from the glass. This is very important, as failure often results through the plants being too far from the glass. Two small mounds may be formed at equal distances in the middle of the light,

in which the plants should be set. The training of Melons grown on this method is of great importance, and should never be neglected, removing all laterals at once that do not show fruit, and pinch the leader when it gets to within a foot of the side of the frame, and never allow the growths to become crowded. Eight to ten fruits to a light will be a fair crop, although we have seen even more than this grown with good cultivation. When the fruits commence swelling they should be raised near the glass on some substance that will allow the moisture to escape. When brick frames are in use we would advise

Hero of Lockinge; Blenheim Orange, Al, Read's Scarlet, Scarlet Premier, County Councillor, and for market work Conqueror and Triumph.

Insects and diseases are not numerous, although all are very destructive if not kept in check. First of all we have canker, a disease which to some growers is very troublesome. Should it appear the best remedy is to cut away with a sharp knife all the diseased parts, dry with a cloth, then rub on a little quicklime. To prevent canker, when planting out place a mound of earth 3 inches high around the stem, and



FIG. 19.—MELON TRIUMPH, GROWN BY MR. W. PALMER.

the bed made as for indoor cultivation, with wires under the glass to train the plants to, as with care they can be grown equal to those in a house; in fact, the fruit of Sutton's Triumph, which gained the first-class certificate at the Crystal Palace fruit show, was grown by me under these conditions.

It is somewhat difficult to make a selection of varieties, but a few may be mentioned for home use and exhibition purposes. Hero of Lockinge should be grown by all. Eastnor Castle is one of the best flavoured Melons, but unfortunately not always of the best shape; William Tillery, Windsor Castle, Amberwood Beauty, Royal Prince, Sutton's Triumph, which I consider a good scarlet-fleshed companion to

keep this dry, only watering on very favourable occasions. Decay of the stems may be prevented by always rubbing in quicklime when cutting away any portion from the plant. Red spider is the result of neglecting to syringe the plants when they are young. If plants are infested they should be well syringed on fine mornings, thoroughly drenching the foliage. Care should be taken, however, not to damage the leaves by using too much force. Black fly is another troublesome pest, but for this there is a very simple and certain cure—that is, to add more leaf mould to the soil, as it is only on stiff heavy loams that this insect is troublesome.—WILLIAM PALMER, F.R.H.S., *Horticultural Instructor to the Hants County Council*.



RUGBY CHRYSANTHEMUM SHOW.

THE annual show of the Rugby and District Chrysanthemum Society will, this year, be held on Wednesday and Thursday, November the 13th and 14th.

CHRYSANTHEMUM SHOW AT COVENTRY.

AT a meeting recently held at the Craven Arms Hotel it was unanimously resolved to hold a Chrysanthemum, Fruit, and Flower show in the Corn Exchange, Coventry, in November next, and a Committee was appointed to solicit subscriptions to start the show on a firm basis. Mr. F. Curtis of 9, Cross Cheaping, Coventry, was appointed Secretary.

A PLEA FOR ANEMONE-FLOWERED CHRYSANTHEMUMS.

YOUR correspondent, "F. G." (page 101) thinks the blooms in this section do not please the ladies. Did he attend the last Crystal Palace show? If so, did he notice the crowds of ladies and others round the tables containing the twelve fine stands of eighteen varieties of Anemones and Japanese Anemones, and hear the remarks made about them? If not, I can tell him that those stands were acknowledged to form one of the most striking features of that fine show, the crowds lingering round them made it very difficult to get a second look at the beautiful blooms. The general verdict was unanimous in their favour.—H. HARRIS.

THE N.C.S. YEAR BOOK.

I HAVE an idea that this book will be considered by many readers to be disappointing. With very few exceptions the articles are behind the times. One chapter I am particularly struck with—viz., the "List of Japanese Novelties for 1895." This is by a trade grower, a very prominent member of the Floral Committee, and almost every other Committee of the N.C.S. The writer of the article begins by informing us that he has tried a large number of novelties in his nursery, besides 1000 selected seedlings of his own.

The list of novelties for 1895 contains varieties introduced in 1892-93-94-95, some of which were certificated by the N.C.S. in 1894. To show how very apt some of us are to consider our geese swans, I would point out the fact that out of the twenty-seven varieties mentioned, and which were raised or introduced by seven of the English trade growers, no less than sixteen were or are being sent out by the writer, four varieties by another, two each to two other growers, and the remainder one each. The exhibition Japanese illustrated throughout the book are five, the whole of which were, or will be, sent out by the writer.

Again, although nine of the sixteen varieties, and three others mentioned which are only catalogued by the trade grower in question, have not been certificated by the N.C.S., some varieties which have been certificated by that Society, but were introduced by other growers, are not mentioned. If Niveus, Th. Dennis, Souvenir de Petit Ami are novelties of 1895 so are Louise, Duke of York, Cecil Wray, and others, and should not be excluded because they are popular and plentiful. Philadelphia, which has caused such a sensation here and in America, is described in such a meagre manner that would lead many to suppose it a second-rater only. If the book is to be of substantial value it must be written by those who are above trade interests.—FAIRPLAY.

THE CHRYSANTHEMUM ELECTION.—DECORATIVE VARIETIES: PRINCESS BLANCHE.

I HAVE been much interested in the elections of Chrysanthemums, as recently published in the *Journal of Horticulture*, and the latest for decorative varieties (page 70) shows a wide difference of opinion. I think a variety to be classed as decorative should be not only free flowering, of good quality, and decided colour, but the habit of the plant should be considered. Had this been done, a great many of the varieties enumerated would have been left out altogether, as pointed out by "F. G." (page 101). The list should be divided into early, midseason, late, and the first twelve are all early and midseason varieties. There is one late white variety—viz., Princess Blanche—that I see only received three votes, but which deserves a much higher place. I have grown and tried scores of varieties for a late white, but have for five or six years past discarded all others for this.

I have heard it said it has not a good constitution, and some have discarded it. I have no hesitation in saying the fault is not with the variety. I grow yearly from five to six dozen plants in 7 and 8-inch pots, each plant producing from three to five dozen blooms, the plants seldom exceeding 3 feet 6 inches high, and from 2 to 3 feet through. As regards cuttings, soil, and potting they are treated the same as other varieties. I never pinch or stop them, but thin the growths and let them grow as they will until the third terminal bud. They make the first break when about 9 to 12 inches high, the second and last from 12 to 15 inches.

As the shoots grow they are looped up to a stake in the centre of each plant, this being all and the only support they require. The plants are fed liberally until the bloom commences to expand. The

peculiarity of this variety is that about the time it makes the last break occasionally a kind of rust attacks the points of the shoots. All I do in any case is to turn the plant over and dust the under side and top of foliage with sulphur. This is done about three times—in August and September, and again when housing the plants. This prevents both rust and mildew. I commence cutting blooms from this variety a few days before Christmas, and on February 2nd I cut down the plants. The blooms were required, or they would have kept at least ten days longer. There is in existence a sport from Princess Blanche, which, excepting colour, is the counterpart of its parent. It opens a bright yellow, and with age changes to a deep primrose. It is named Jannette Sheaham, and received an award of merit from the F.C. of R.H.S. on 15th January last. When this can be obtained I would advise all who require a quantity of white and yellow flowers during the latter part of December and January to give a trial to these two varieties, and if treated as I have described I feel sure they will not be disappointed with results.—J. LYNE.

CHRYSANTHEMUM VISCOUNTESS HAMBLEDON.

THIS comparatively new Japanese incurved variety is a welcome addition. The fine ivory-like substance of the florets stands out and forms a striking contrast to the more feathery varieties. It is a grand keeper when cut. I had some blooms quite fresh for more than a month in a vase in a living room. It is most peculiar in the growth, being very floriferous, and may be rightly called a perpetual flowering variety, resembling in this respect Miss Anna Hartshorn, to which I should think it is closely related. It is a very difficult one to get stock from, so no wonder the majority of the trade announce plants only, no cuttings. What cuttings or side shoots are produced have a bud about every third leaf? and one of my objects in writing is, whatever objections one might have to inserting bud or stem cuttings of other varieties, not to be deterred from this one, but take advantage of what pieces you can procure, though of course suckers would be preferred. Pot them firmly near the side of a small thumb pot in light sandy soil, and as soon as the cutting is well callused or has commenced rooting nip out the top flower bud, when it will produce side shoots from the base of the other leaves. These in their turn will produce other buds, some more than others, and they also must be removed. The laterals produced should also be cut out, leaving three or four main stems. The buds showing about the first or second week in August should be taken, as on account of the great substance of the flower it takes a long time to develop.—C. ORCHARD, Bembridge, I.W.

SHEFFIELD CHRYSANTHEMUM SOCIETY.

PERHAPS nothing has done more to further the interests of horticulture in this country than the formation of such societies as the above. It is at the meetings of these that growers congregate for the purpose of comparing notes and discussing knotty questions relating to the cultivation of various plants, by which all are benefited. In addition to this they are the means of establishing exhibitions of fruits, flowers, and vegetables, where prizes and diplomas of merit are offered, and in many cases keenly contested for. Thus the standard of cultivation in these localities is raised considerably. An excellent illustration of the success of such societies was the annual dinner of the Sheffield Chrysanthemum Society, held at the Masonic Hall on January 28th.

Smoky Sheffield itself had anything but a prepossessing appearance. However, any dull forebodings that might have arisen were instantly dispelled on arrival at the hall, where a hearty welcome was accorded by more than one hundred members and friends, all interested in horticulture. Amongst the guests were E. G. Jeffcock, Esq., President; and Mr. H. Broomhead, Hon. Treasurer; Mr. Housley, Secretary; and Mr. Haigh, Accountant to the Society.

The Midland Railway Company was represented by Mr. A. S. Jarvis, and Mr. Jones of Ryecroft Nurseries, Lewisham, was also welcomed. The kindred societies in the locality were well represented by delegates from Wakefield and Leeds Paxton Societies, the Rotherham Gardening Society, and the Sheffield and Walkley Floral Societies, each of which are doing good work to further the interests of gardening in their several localities.

Mr. Jones, when proposing the toast of the Society, said that of Sheffield was recognised as being one of the best in the country, their shows being well arranged and conducted on the best principles, though he had a few suggestions to make which he thought might be acted on with advantage at the next exhibition. The Chrysanthemum show, instead of the dull sameness of row after row of blooms on boards, might be varied by the introduction of such classes as mixed groups of flowers; vases of Chrysanthemum blooms arranged for effect, with a limited number of blooms in each. The seconder also presented medals for premier blooms at the recent show to Mr. Broomhead of Sheffield, and Mr. Alderman, gardener to J. D. Ellis, Esq., Sparken House, Worksop, each of which were acknowledged by the recipients.

Mr. Housley, Secretary, in responding said he was glad to be able to present such a satisfactory balance-sheet. They had commenced the season with only the small sum of 9s. in hand, owing chiefly to the inclement weather on the day when the show was held in 1893. This year, however, things were in much better form, as they had now a balance in hand of £63 5s. 9d. This capital result had been brought about by the amicable and energetic manner in which the Committee had worked, and by which efforts an excellent show had been established, resulting in such good financial returns. Mr. Housley's declaration was received with loud applause.

A worthy branch of this Society is the provident fund, to which the sum of £9 13s. 6d. has been appropriated. A library has also been instituted, mainly through the benevolence of Mr. H. Broomhead, who has presented the bulk of the volumes; thus the members have at their command a mine of information, which many of them, judging by the standard of their exhibits, turn to good account.

The Society is deserving of congratulation on its most satisfactory condition, and it is hoped that under the present able and business-like management it will continue to flourish, and thus be enabled to extend the limits of its shows and usefulness.

FERTILISATION OF THE CHRYSANTHEMUM.

UNDER the above heading (page 78), you refer to a communication upon this subject made by Mr. H. Briscoe-Ironside to the Scientific Committee of the R.H.S., and read at its meeting of the 15th inst.

I infer from the references and quotations made that Mr. Briscoe-Ironside suggests a doubt whether florets of the Chrysanthemum are proterandrous, and therefore naturally adapted for cross-fertilisation, a statement of Burbidge to this effect being apparently challenged. I think that a close examination of the life history of the floret of the Chrysanthemum will show to demonstration that the florets are clearly proterandrous, the lengthening of the style, with its stigma surfaces closed, and therefore not susceptible of fertilisation, serving to clear away from the tube of the anthers the pollen which has been already for some time set free by the dehiscence of the anthers.

The correctness of this view I have found to be absolutely established in practice, for, notwithstanding the "minuteness and proximity to each other of the florets" which is alluded to, I have never known, in the practical work of artificial fertilisation, as distinguished from that effected by insect agency or by wind, a single case of fertilisation of the ovary by the pollen of the same flower; and this means the experience of some hundreds of seedlings—over 250 in the year 1894 alone.

It is obvious that the mechanical application, by the camel's hair brush, of foreign pollen, however carefully effected, would occasionally bring about the fertilisation of the ovary by the home pollen, were such abundantly, or even appreciably, present on immediately adjacent anthers. I conclude, therefore, that for the purpose of artificial fertilisation, whatever may be the case where insects and wind have access to the capitulum, the florets of the Chrysanthemum are sufficiently and distinctly proterandrous.

Whether, under the conditions prevailing in Italy, the Chrysanthemum is more, or less, susceptible of self-fertilisation than of cross-fertilisation I am not prepared to definitely state, but it must be remembered that while it is undoubtedly the fact that the stigmas of the ray florets, and of the outer florets of the disc, are ready for the reception of the pollen before the inner florets of the disc have shed the pollen which they produce, it is also a fairly established conclusion, which has, I believe, the acceptance of Sir John Lubbock, that insects visit the capitulum centripetally, and are therefore less likely to convey the pollen from the inner to the stigmas of the outer florets.

Mr. Briscoe-Ironside tells us that the seed resulting from the "self-fertilisation" of the disc florets gives poor results from the horticultural point of view, and that he thinks it to be "most probable that this is the seed which is advertised and sold, and which, as we learn, gives such poor results." That artificial fertilisation of the florets of the disc—the outer rows only being used—gives the very best results experience has proved, and the result of your recent "audits" has confirmed; but undoubtedly if the seed be but the result of "self-fertilisation," then, whether it be from ray or disc floret, we can understand its comparative poor quality, a point upon which I should not be disposed to differ from Mr. Briscoe-Ironside. But the American florists, from whom the bulk of the seed of commerce comes, profess, at least, to use only the ray florets for fertilisation, cutting out the disc altogether, and to carefully fertilise by hand. I fancy that the charge of leaving their flowers to "self-fertilisation" would rather astonish them.

That because "history conspicuously refers to the varieties raised by their comparatively few raisers," we are to infer that cross-fertilisation is not natural or is infrequent, I confess is not very apparent. You have already given two answers to the suggestion, and I may add a third. History "refers conspicuously" to the productions of man, whether they be improvements in the breed of horses, cattle, or of flowers, not because these members of the natural world find it "unnatural" to breed on their own account, but because the intelligence of man directing the selection provides a more certain and immediate road to higher results than are furnished by the unaided and unguided action of "natural selection" or haphazard insect agency.

Suggestions aimed at the acquirement of a more accurate appreciation of the laws of Nature are always to be welcomed, but in the interest of exact science we are bound to examine and test the character and sufficiency of the observations which are the cause and authority for the suggestions, so that we may assure ourselves that inferences are not too hastily drawn from insufficient premises. In the present instance Mr. Briscoe-Ironside gives us an insight into his data in an interesting article upon "The Chrysanthemum in Italy," contributed by him to the N.C.S.'s "Year Book for 1895." Referring those interested in the matter to this article in question, I fear I must say that the range of ascertained fact must be somewhat extended before we can safely modify our opinions adversely to those of the authorities by whom we are accustomed to be guided, for we learn that from two flowers of C. Florence Davis Mr. Briscoe-Ironside obtained three seeds only, and that from three flowers supposed to be fertilised after removal from the plant—I say

"supposed," for there is nothing whatever to show that these few seeds were not the result of insect fertilisation prior to removal—only seven seeds resulted. And Mr. Briscoe-Ironside candidly admits, "but the amount of seed I obtained in crossing was always very small." Whether we have, therefore, yet premises sufficient to found any acceptable theory of fertilisation must be at least a question for consideration.

I trust, however, that Mr. Briscoe-Ironside will continue in this country the observations which he has commenced in Italy, and that data will eventually be amassed sufficient to add to the stock of knowledge which we possess upon a very interesting section of Nature's handiwork.—CHARLES E. SHEA.

PEELING AND CLEANING VINES.

"IN the multitude of counsellors there is wisdom," and it is certain that your correspondent who asked for advice cannot complain of inattention on that score.

It appears there are one or two points on which a few more remarks are expected from me, and I am quite willing to make myself as useful as possible. So far the majority of correspondents favour the removal of at least some of the bark, but still I am unconverted. I like to see it in all its rough and ragged beauty. True, if a piece half a yard long hung in my way I would not hesitate to shorten it, otherwise let it remain or fall as happens to suit it best.

I do not say that there can be any great harm in pulling off the loose bark, but does anyone ever stop at that which is really loose? You take hold of the end which has parted from the stem and pull it gently. It tears along easily a yard, perhaps 2 yards, and you think you are only pulling off the loose bark; but examine the stem at the two extremes from which the bark came, and you will find them very different in appearance. The first part has provided itself for the loss, and the other has not. Mr. Molyneux (page 76), who is very temperate in his remarks, and who, I think, would not, any more than myself, peel Vines if there were no necessity for it, yet gives some measurements to prove that no very bad results follow the practice.

His figures for fourteen-year-old Vines are 9 inches circumference for the largest, and $5\frac{1}{2}$ inches for the smallest. These measurements are, I believe, considerably above the average for Vines of that age, but they do not "beat the record." If he will turn to the *Journal of Horticulture* for December 21st, 1876, he will see that of the Longleaf Muscats planted at midsummer, 1870, "the circumference of the largest is 13 inches, and that of the smallest $10\frac{1}{2}$ inches, measured just above the ground. At 2 feet 6 inches from the ground the largest measures $8\frac{1}{4}$ inches, and the smallest $7\frac{1}{2}$ inches." In one of the numbers for 1882, that is twelve years after planting, it is recorded that the smallest Vine then measured 18 inches in circumference. These Vines are, I am happy to say, still in good hands, and are doing remarkably well.

Mr. Murphy (page 72) is too flattering. He evidently expects me to be not only a practical grower but a cyclopædia of physiology. Now I have no difficulty in stating facts as they appear before my eyes; but when I commence with theory I am not on such sure ground. Nevertheless, I will do my best even in that line.

First, we must consider what bark really is, and here let me say that the definition given by "J. S. G." (page 102) from Chambers' is out of date, and that there is no such thing as a "solid part" in bark at all. In Prantl's "Text-book of Botany," second English edition, revised by Dr. Vines, at page 65 is given a highly magnified section of the bark of *Ailantus glandulosa*, and this shows a series "of tabular cells arranged in rows perpendicularly to the circumference of the organ, their walls are converted into cork, and are scarcely permeable to water. They usually contain nothing but air." Between the outer skin and the cortex these cells are to be counted to the number of eight or ten, one above another, besides two or three near the inner bark, which are not empty. At page 66 we read, "A formation of cork is wholly absent from only a very few woody plants, such as the Mistletoe and a species of Maple (*Acer pennsylvanicum*). . . . In consequence of the impenetrability of water, which is characteristic of the cork cells, all the tissues outside the periderm necessarily dry up, and these dried tissues, which may belong to different tissue-systems and include the most various forms of cells, constitute what is known as *bark*." And at page 84, "Every part of a plant which is exposed to the air and which is not covered by a layer of cork or of cuticle is constantly losing water by evaporation into the atmosphere. . . . The stems of most woody plants and trees are almost entirely prevented from transpiring by thick layers of cork."

We see then what a perfect covering the bark forms, and if the flow of sap, as believed in by our forefathers, upward and downward, as regular as the water in our heating apparatuses, was not a myth, all the rest would be easily explained. But modern science, that cruel destroyer of the poetry and simplicity of our youthful beliefs, says there is no such thing as sap in the old acceptance of the term to flow like blood from the human heart and back again. That plants were heartless we have long found out, or they would oftener reciprocate our tender love, and that there is no continuous channel even for half an inch for a fluid of any kind.

We have only, then, water and air as far as I know to look to for solving the problem. I take it that if all this non-conducting material was necessary to prevent transpiration, which is certain to take place on its removal, and also that the exposure would interfere with the current of water necessary to keep the leaves rigid.

I cannot say for certain, but should imagine that the bark on my

older Vines was nearly, if not quite, a quarter of an inch thick, and of course they would suffer more than those from which the bark is removed annually. One or two correspondents suggest that the flagging might be the effect of the ravages of the spider during the previous year, but the fact is some of the Vines which were not badly injured in that way flagged just as much as those which were injured the most.

One house of Vines only three years old was barked like the rest, and here out of eight or nine varieties the Black Hamburgs only flagged, and these very badly. Gros Colman here, perhaps a dozen in number, showed no sign of drooping, and yet in the older house it exhibited more signs of distress than any other sort.

Mr. Coates (page 77), is quite correct in saying that clay dressings harbour the insects. If the dressing could be made and continue airtight everywhere it might do some good, but that is impossible, and wherever there is a crack there is a harbour for the enemy. There is no use in putting it on during the winter, but although I certainly could not see any benefit from applying it in the summer, I must think the shade it afforded to the stem should count for something, and I shall try it again.—WM. TAYLOR.

I WAS much interested in reading Mr. Taylor's graphic account of his experiment in peeling Vines (page 5, January 17th). His was an extreme case, no doubt, and a desperate remedy had to be applied. I am quite sure it would not have been undertaken by such a skilful Grape grower had it not been a case of necessity. I believe his article has conclusively proved that close peeling is injurious to the health of the Vine, and such extreme cases of treatment ought not to be lightly indulged in. What a pity it is that this pointed and decisive letter of his could not be made to fit in at the end of those articles on Grape growing which were written by him and published in the Journal some years ago. Could not those articles be reprinted with such additions as Mr. Taylor's experience might warrant? Many a young gardener at the present day would profit by them.

I should like to hear what is the aspect of his vinery, and if it is glazed with large panes of clear glass. If it is, and has a southern aspect, there is no wonder that the leaves flagged and the crop was light, for there must have been intense heat beating down on the exposed tender green bark, with some amount of transpiration. I think more harm is sometimes done to the tender tissues of the inner bark of Vines and fruit trees under glass than is often imagined, this intense dry heat acting injuriously in checking the proper action and circulation of the sap, and encouraging insect life, more especially on Vines which have been ruthlessly deprived of their natural protection. I regret to say I have had to resort to this skinning process, and know the ill effects, but will never again willingly attempt it.

I believe there is no better cleansing dressing than the following for battling against these insidious pests:—Softsoapy water at a temperature of 100° to 120°, brushing it well into the bark, particularly around the spurs, but being careful of the eyes; wash well with this until the bark is quite saturated, then before it dries go over them with a wash made of a pint of Lemon oil to 6 quarts of water at the same temperature, working this well into the bark, particularly around the spurs. I have a great liking for this insecticide, as I have never seen any ill effects from its use.

In chemistry nothing now seems impossible; surely it could not be very difficult for chemists to produce a substance that would penetrate the porous bark of Vines without injury, and at the same time prove fatal to insect life.—J. EASTER, *Nostell Priory Gardens*.

PEAT MOSS LITTER.

As there has been some discussion on this subject in the Journal, I venture to send a few remarks representing my experience. A few years since I had charge of extensive gardens where peat moss was used as bedding for a large stud of hunters. The manure was used for all kinds of kitchen garden crops, mulching fruit trees, growing Mushrooms, in fact everything that it was wanted for. The effect on most crops the first year was about the same as if manure from straw-bedded stables had been used. The second year the effect of the moss litter was ruinous. After all the manurial elements were used up the decayed refuse caused the ground to be filled with fungus, which destroyed all the fibres of every plant that it touched.

I mulched fruit trees against walls through the summer, leaving it on all the winter to decay the following spring. The whole border underneath the litter was white with mycelium very difficult to destroy, and only got rid of by several dressings of half-slaked lime forked in. The same effect occurred in a Peach house where it was used. I mixed some with loam for filling pots for layering Strawberries in. The runners took to it very quickly, and soon filled the pots with roots. They were planted in well prepared ground in August, and all went well until the following spring. Just after the fruit had set one plant after another commenced flagging, and the whole quarter became a pitiable sight. I suspected the cause, and on examination found every ball filled with this fungus. With Asparagus the effect was very different. I dressed beds heavily with it, but no fungus occurred. This immunity I attributed to the use of salt, a few handfuls of which were scattered on the beds every week all through the growing season. This destroyed the fungus germs, and finer Asparagus I have never seen.

I used the moss litter largely for growing Mushrooms, and for such purpose I think it has no equal, but it should be kept under the horses for some time until every particle is saturated with urine, and

then thrown into a heap and turned two or three times to sweeten; it is then ready for use, and fine Mushrooms may be expected. It is well to add a few wheelbarrowfuls of good loam when making up the bed, as it helps to give firmness and durability. Thus we find that though it has its drawbacks it also has its good qualities, and should be used with care. It has a wonderful effect on grass land, especially clay soils, and should be used as it comes from the stable, as the manure is soon washed out by rain when laying in heaps, and consequently lost.—S. D.



FARNINGHAM ROSE SHOW.

THE annual show of the Farningham Rose and Horticultural Society will be held at Farningham on Wednesday the 3rd July.—STANLEY EDWARDS, *Hon. Sec.*

ROSA RUGOSA.

I HAVE been much interested in "Practice's" correction (page 98) of my statements respecting *R. rugosa*. I evidently was not up to date, and am glad to be introduced to Madame George Bruant, and to hear of other new plants coming on. Unless I am wrong again "Macartney" is now the one Rose race that has not been as yet improved on. The foliage is magnificent, but the flower unsatisfactory. "Maria Leonida," says Rivers, "planted in an orchard house and fertilised might give some curious hybrids."—A. C.

HARDY NOISSETTES AND TEAS.

I PRESUME there are few lovers of Roses who have not remarked their winter characteristics. Some of these, for example, will be found to be much hardier in constitution than others, and it is rather remarkable that among the Noisettes two of the hardiest should be perhaps the most beautiful of all—viz, *L'Idéal* and William Allen Richardson. This, at least, is the teaching of my own experience. During the past month, the most exacting January in the matter of frost we have had in Scotland for many years, these superb Roses have yielded much less to its influence in my own garden than even the greatly lauded *Aimée Vibert*, which, like them, is growing on a sheltered south wall.

Up to the present period, though perfectly unprotected either by Fern or Fir branches (the latter of which I keep for the more tender Teas) the Noisettes to which I have alluded in such complimentary terms have not lost half an inch of their wood. I have another William Allen Richardson on a wall exposed to the south-east wind which is very frequently strongly touched with frost. Having been transferred to that exposed position from a conservatory, I expected that in such a season as this it would, metaphorically as well as literally, "go to the wall;" but I find to my gratification that it is perfectly intact. An utterly unprotected *L'Idéal*, planted in one of the most central and exposed borders of the garden, has with equal tenacity of existence, survived.

The most vigorous of all Roses, and the strongest in constitution, is undoubtedly the redoubtable *Gloire de Dijon*. I can well understand the Dean of Rochester's enthusiasm for this remarkable Rose. My grandest specimen (or rather my youngest sister's) received during the memorable storm of December last a very severe and unexpected pruning by the sudden collapse of that portion of the north wall on which it was placed. All its leading branches were broken off, and the giant Rose tree hurled to the ground. But *Gloire de Dijon* is famous for its capability of producing strong laterals, and I doubt not that in virtue of its vigorous character the amputated limbs will be completely recovered by the end of next summer.

During a crucial season like this the Roses that chiefly require protection from frost are the more delicate Teas; nevertheless, I find that many of these are much hardier than I had anticipated, and one that I have found very admirable in this and other respects is *Princess of Wales*, one of the most attractive varieties within the range of my acquaintance. I have also been much gratified by the vigour and endurance under extremely exacting atmospheric conditions of Madame Elie Lambert, a valuable new Tea Rose not yet widely known. Comtesse de Nadaillac, also Madame Pierre Cochet, are exquisitely beautiful and free-flowering Noisettes, recently introduced; *Maréchal Niel*, which can tolerate winter frost with more equanimity than summer rain; *Corinna*, *Medea*, *Clara Watson*, *Miss Ethel Brownlow*; *Marguerite*, a pure white variation from Mrs. James Wilson; Catherine Mermet and her two fascinating American daughters, *Waban* and *The Bride*; Madame de Watteville, and Marie Van Houtte. All these Roses have distinctive attributes, but none more valuable than the special qualification to which I have referred.—DAVID R. WILLIAMSON.

THE ROSE AND MILDEW.

WITH the present season of young growth among our indoor Roses I would like to give a few hints on the above disastrous disease. We can kill mildew, it is true, but when once its germs have put in an appearance on old or young leafage it is very difficult indeed to eradicate them without risk of serious injury. Noting this fact, it

surely behoves us to keep the disease away as far as we possibly can. This is so simple if we but take precautions from the first; but if we let it secure a hold, as I have already said, it is the worst of all Rose pests. Changes of temperature, chilly draughts, and drought are the chief causes. In fact I may say that a serious check from any cause will oftener than not result in an attack of mildew.

I recently visited a set of Rose houses, and the majority of them already had serious attacks from mildew. I was much surprised to find this, and also to see nothing but dusting with flowers of sulphur used as an antidote. When sulphur is used as a dry dust we have to use much more than I like, it also chokes up the pores of the foliage and has a very unsightly appearance. Drought was the cause of mildew in the estimation of my friend, but I feel certain that it was the severe check to root growth quite as much as the former. Climbing Roses were grown in low, span-roofed houses, and the roots turned into borders on the same system as Vines. Of course many of these were outside, and the severe frost affected them. Some few varieties are affected more than others, nevertheless the first cause is the same.

The outside roots of these Roses were protected slightly, but by no means sufficiently for the present severe frost. I think my readers will agree with me that as the young growth of these Roses was in most cases showing the flower bud there is little doubt the whole of their roots, both inside and outside, were active. My own experience tends to prove that we should never force Roses that have their roots in outside soil so liable to fluctuations. Either let them be confined to the inside border, or else treat them in as steady and cool a manner as possible.

I have traced the cause of mildew on pot plants to the use of very chilly water, too a strong stimulant, and to a wide fluctuation of temperature. Is it not exactly the same among our summer Roses in the open? We find this disease prevalent immediately on any sudden change or artificial means that may have resulted in a check. We cannot entirely avoid mildew in the open, but I contend there is very little excuse for it under glass, and especially in the case of a house devoted entirely to Roses. If the temperature rises unduly, and, as is so often the case at this season, a bright sun is accompanied by a keen wind, we had far better temper the atmosphere with moisture and immediately lower the fire than to admit ever so little of the outside air. If we also syringe with some very weak insecticide containing rather more sulphur than usual we shall have a delicate and not unsightly dusting all over our Rose growth, and it is surely far better to have the remedy already on the plant than to wait until the enemy has taken possession.

Such is my practice, and from the result I should require considerable persuasion to alter. In the next syringing with ordinary solutions the sulphur will be removed. Even if it is not we avoid any unsightliness, and also the use of sufficient to do harm. Petroleum, again, is a grand addition to any insecticide when fighting mildew, and a very little has a wonderful effect, besides being perfectly safe.—PRACTICE.

CAMPANULA GRANDIFLORA PUMILA.

THE stately perennial which is variously known as *Platycodon* or *Campanula grandiflora* is a favourite occupant of many gardens, its large, open, deep blue flowers being produced most freely. This and some of its varieties reach the height of 2 or 3 feet, and therefore either require permanent corners and similar sites, or they must be placed behind other dwarf-growing border plants. A variety possessing all the good qualities of the ordinary *C. grandiflora*, but with a considerably dwarfer habit, is that represented in the woodcut (fig. 20), *C. grandiflora pumila*. This grows 9 to 12 inches high, producing flowers similar to the type in size and colour, and forms a beautiful specimen, as it soon becomes covered with flowers. The plant is well adapted for culture in pots also, and is readily increased by seed. Any ordinary garden soil that is not excessively heavy or wet suits it.

APPEAL JUDGES.

WITHOUT doubt "C. K." was disposed to be satirical when proposing me as an excellent appeal judge. Realising the complete absurdity and incongruity of such a post I respectfully decline. I have no disposition to gratify the humours of a few dissatisfied exhibitors. On matters of taste or opinion I have no faith in courts of appeal. The utter impropriety of such a thing was well demonstrated at that Edinburgh show, when an "expert" was invited to act as such a court. The position of judge of appeal would entitle the person or persons undertaking such an office to treble fees, suits of armour, and stout cudgels lest he or they should meet with the reception sometimes awarded to referees at football matches.

If there be a disputed award made the proper court of appeal in every case is found in the ordinary judges, and if they choose to ask in such case for the assistance of a member of the Committee or other suitable person as assessor no exception can be taken to such course. That other persons of equal knowledge, or perhaps less knowledge, should be called on to review the decisions of other two or three capable judges on matters of taste or of opinion is a proposal that can scarcely be entitled to serious consideration.

Obviously, as I have said before, it is the duty of committees to secure the best men they can as judges. To admit of an appeal is to admit the Committee were remiss in not obtaining the best available judging talent, and that farther they regarded their judges as after all incapable. It need hardly be said that such a thing would be intolerable; in fact, nothing would so surely tend to drive the best, most capable, and honourable men out of the judging arena.

My intimation that the only fitting court of appeal is found in the judges themselves applies only to questions of fact, interpretation of conditions, or of disqualifications, which can only be based on matters of fact. In these matters committees who prepare schedules are generally most to blame, because conditions and requirements in competitions are so obscurely drawn. Why do not exhibitors who have reason to complain of troubles arising from this cause communicate with committees,



FIG. 20.—CAMPANULA GRANDIFLORA PUMILA.

and point out how, by different wording, similar troubles may in future be avoided? If exhibitors misread, or do not read prescribed conditions affixed to classes, they have themselves to blame. Seeing, however, how comparatively few the *bona fide* complaints are (I use that term with complete emphasis), arising from the hundreds of shows held during the year, it does seem after all as if molehills were being converted into mountains.

As a member of the Royal Horticultural Society's Code of Judging Committee, I am not at liberty to disclose what that hard-working body is doing, but I may say at least that this very subject is not lost sight of, and have reason to hope that proposals will be formulated which may, so far as matters of fact are concerned, satisfy all practical requirements.—A. D.

ARE they necessary, when so many competent judges, both gardeners and amateurs, are to be found throughout the country? If societies select the most competent men that their means afford, and assign each set to adjudicate on the classes for which they are the most qualified, there would be fewer complaints about the verdicts. If one judge is an expert on fruit, does that make him as good a judge of florists' flowers or of plants? I have accompanied judges in their work, and have not found them to err knowingly in their verdicts. We do not all see objects with the same eyes, and the owner of an exhibit close in merit

to a rival thinks his own the more meritorious. I have always found judges most willing to review their own decisions, but with a very bad grace would they undertake to review the awards of others, because they were not looking through the same spectacles.

I do not see how "C. K.'s" proposal of "appeal judges" would work. I will appeal to his own sensibility, and ask him if he would cheerfully undertake to judge a Pansy show, knowing that his near neighbour was sitting in a room anxiously waiting until "C. K." had finished, then to sally forth and perhaps reverse some of his decisions. Whose decision, then, would be the correct one, seeing that the appeal judges are as qualified as he is himself? Let "C. K." answer.—G. McD.

VIOLA NOTES.

As an ardent admirer of the Viola I have read with interest the notes from your able correspondent, Mr. W. Dean (page 98). The history of our favourite flowers is always a point lost, more or less, to every new or young cultivator of the flower, unless, as in this case, an old fancier steps into the breach and supplies the need. I have from time to time collected from various sources scraps of Viola history, but I was quite unaware that Mr. Jas. Grieve had experimented in Viola crossing on the same lines as Dr. Stuart; thus it is a case of "honour where honour is due," at the same time it does not detract from the doctor's work.

Looking through the list of varieties as given on page 98, it is surprising to notice how few of them are generally grown at the present day. Tory, Snowflake, Blue Bell, True Blue, and Golden Queen of Spring appear to be all the old varieties noted that have any claim to popular favour now, though some of the others are met with occasionally. I wish all raisers of Violas would accept the necessary properties as laid down by Mr. Grieve in 1880, and I heartily agree with Mr. Dean on this point, but what do we find? Simply this. We are now getting all kinds of rubbish year after year; the only *sine qua non* followed by introducers is "Something that will sell," no matter what its value as a bedding plant may be, or in fact any other of its essential characters.

I hold it be a very important point that every new Viola should possess the dwarf dense habit of growth so desirable for bedding purposes, but I can recall, only last season, a case where a prominent exhibitor had one of the new varieties staked as though it were a Carnation. Surely such as these do not come up to our ideal of a Viola. The second point in Mr. Grieve's standard is also being lost sight of—viz., "That they bloom freely and continuously during the spring and summer, or summer and autumn." I am sure any Viola grower who has a modern collection can point out many varieties which do nothing of the kind. They may produce a few flowers which are very attractive on the exhibition boards but are utterly worthless for other purposes.

I am quite willing to acknowledge that the majority of our new varieties do possess the necessary stout texture in petal, because if lacking in this particular point exhibitors would not recognise them, knowing full well if put on the show stand they would collapse before the judges examined them. The Fancy, or parti-coloured flowers, are certainly the most popular for exhibition purposes, and I do not wish to decry their merits in the garden, for many of them are particularly beautiful; they may not be so useful for massing as the self colours. Duchess of Fife, White Duchess, and Goldfinch, are excellent examples of this type, and worthy of a place in every collection. Their growth is also admirably adapted for carpeting the ground, if the flowers, instead of looking downwards would turn their faces upwards, they would form an almost ideal type. Then, again, we have a parti-coloured type of a different habit in Skylark, Blue Cloud, Acushla, and Laverock that are always the first to produce their flowers in the spring, which they do to perfection. Later in the season they do not maintain their "belting" very well, and this fact alone makes them so unpopular with the modern exhibitor.

The Violetta type, about which we have heard so much lately, is essentially one for the flower gardener, as it is not adapted for exhibition purposes unless classes are formed for it, and even then it is not striking. Its place is certainly in the garden, and its failing there is it blooms very late. If raisers of this new section will turn their attention to creating an early flowering class of the type, they will be conferring a benefit on all lovers of this flower.—JAS. B. RIDING, Chingford.



HARDY FRUIT GARDEN.

Pruning Peaches, Nectarines, and Apricots.—As the buds will be swelling shortly, the requisite attention necessary at this season must be given to wall trees, so that the work may be completed before they are advancing rapidly into bloom. As a rule it is advantageous to defer the training, if not the pruning, until the middle of February or

even a little later, because the branches and shoots, being away from the influence of a warm wall, the buds are retarded. This is the object of loosening the branches from the walls in the winter. The practice also fully tends to ripen the wood, and it is necessary when the trees require extra overhauling, together with a general regulation of all the principal branches.

Pruning.—When due attention is given to all the details of management occurring in their various seasons, the amount of pruning required at any one time is not large. Neglected trees, however, will need considerable manipulation, first in removing any crowded main branches, the proper disposal of the subsidiary branches, and then the thinning out of the bearing wood. Severe pruning is an evil with most stone fruit trees, as it interferes with the balancing power of growth; but overcrowding must be avoided, or the crops will be influenced unfavourably. With such trees the main object should be to obtain a fair amount of vigorous, yet not too luxuriant, wood, discarding the old as much as possible, and with due attention to providing successional growths from the base of each fruit-bearing shoot, as well as in other suitable parts, if necessary, to furnish bare places, the trees will be renovated gradually. Trees pruned in the autumn to the extent of having all the old bearing wood cut out will need but little now. Thin out the future bearing wood, leaving the shoots so that they can be laid in 4 to 6 inches apart. The unripe points may in most cases be shortened to triple buds, in order that wood growth can be continued to attract sap to the fruit. Shortening to a point where a wood bud exists is important, and if a triple bud is not selected prune to a single wood bud.

Character of Buds.—The difference between wood and blossom buds is easily seen, the former being thin and pointed, the latter plump and round. Shoots vary in the number of particular buds they carry; some may contain nothing but blossom buds, the end bud or terminal, however, will be a wood bud. Such shoots ought not to be shortened at all. Others may have nothing but wood buds; these, of course, are useless to retain for fruiting, and being usually weak may be cut back to basal buds, providing a number of shoots for furnishing are not wanted near that point. On other shoots the buds vary greatly, triple buds predominating on some, a wood bud and two blossom buds. Double buds may also be present, both sometimes being bloom buds, at others one of each; while frequently a wood or blossom bud occurs singly. Invariably the best shoots are those that have a wood bud adjoining the blossom bud or buds. All shoots contain growth buds at the base, from which successional shoots are secured each season.

Lateral Shoots.—Some vigorous trees have growths that during the previous growing season formed laterals. These ought to be checked by pinching to the first joint, and afterwards to one leaf, shortening at the winter pruning to the buds at the base, which by pinching the growths have become plump. Shorten the point of the main shoot to a ripe portion where there is a wood bud. Those shoots with laterals are not quite so desirable as clear young wood, and generally indicate that a little curtailment of strong roots would be beneficial.

Spur Growths.—Fan-shaped unrestricted trees are not freely furnished with spurs, either natural or artificial, except in the case of Apricots, which produce spurs readily, as well as long annual shoots. Natural spurs are those short clustering growths borne on the branches without any inducement by pruning. Artificial spurs are formed by shortening surplus growths in the summer, and cutting them back in the winter. A fair number of each may be admitted, or the trees may be kept wholly to producing fruit on young annual wood.

Cleaning the Trees.—After pruning, and before training-in the branches, a fresh and effective dressing should be applied carefully to every part of the trees, in order to destroy mildew, insects, or blight. Any of the advertised insecticides are good, also a solution consisting of 4 ozs. of soft soap to the gallon of water; to this, form into a paste and mix in 1 oz. of sulphur. Apply with a brush to the trunk, branches, and shoots, working the brush upwards from the base of the latter, so that the buds are not injured. The solution may be thickened like paint by adding enough soot and clay. It is well to cleanse the walls by brushing or syringing with the solution or very hot water, filling-in all old nail holes, crevices, and had joints with mortar.

Training.—Dispose the main shoots over the wall as equally as possible, using strong shreds and stout nails; follow with the subsidiary branches, and finally the young wood. Use no more ties or shreds than are necessary, and train as straight as practicable.

Top-dressing.—The top layer of soil immediately over the roots is usually poor and inert material. If this is removed down to the roots, fresh material—consisting of loam, wood ashes, and a little partly decayed manure, adding to every hushel about 1 lb. of chemical manure—may be advantageously applied. Make the addition fairly firm, and roots will soon lay hold of it.

FRUIT FORCING.

Pines.—**Fruiting Plants.**—The plants placed in heat at the New Year are showing fruit, and should have a mean temperature of 70°, varying 5° according to the weather, admitting air at 80° with sunshine, but do not lower the temperature, nor allow a current of cold air to act directly on the plants. Allow the heat to rise to 85°, close between that and 80°, and if it rises somewhat after closing that will be advantageous rather than otherwise. The plants now pushing fruit will, if in good condition at the roots, produce strong suckers. When these are large enough to handle, all except one to each plant must be removed or have the growth checked by screwing out the centre.

Supplementary Plants.—To supplement the autumn-potted plants

select others from the nursing department which have been wintered in 7 or 8-inch pots, choosing the most vigorous. Those remaining may be reserved until the general spring potting, when they can be shaken out and treated similarly to suckers. Good fibrous loam, with the turf well reduced, placed under cover to become dried, is a suitable compost. It should be torn up roughly, rejecting the small particles. Drain the pots well, dust dry soot or wood ashes over the crocks to exclude worms, and ram the soil firmly round the plants, keeping them well down in the pots to admit of copious supplies of water being given when necessary; 10-inch pots are suitable for Queens, and 11 or 12-inch for those of more robust growth. A temperature of 60° to 65° will be sufficient for these plants, also those potted last autumn, and about 85° bottom heat.

Starting Plants into Fruit.—The beds in which these are placed must not be more at the base of the pots than 90° to 95°, or the roots of the plants will be injured. If sufficient fruits be started to meet the requirements later successional plants that have not been subjected to a high temperature may be advanced slowly, they with autumn-rooted suckers requiring careful watering, especially when the heat at the roots is supplied by fermenting materials.

Figs.—*Earliest Trees in Pots.*—The trees started in November or early in December to afford fruit at the close of April and early in May will be forming fresh roots, the bottom heat being kept steady at about 70° to 75°. Raise the fermenting material to the rims of the pots, and instead of allowing the roots to come over them place pieces of turf round the rims to keep the roots near home and induce a sturdier growth. Maintain a genial atmosphere by syringing twice a day and damping as may be required in bright weather. Admit a little air at 70°, increasing it with the temperature; close at 75°, and if the heat rises to 80° or 85° from sun heat it will be an advantage. The drainage being good, and the trees in proper condition, there is little danger of giving Figs too much water, many crops being lost by the soil being allowed to become too dry. The temperature in dull weather may be kept at 60° to 65° by day, 55° to 60° at night when the external air is cold, but 5° higher when the weather is mild. Disbudding must have attention as growth advances, and gross shoots be stopped; but it is better to keep the growths rather thin and secure sturdy, short-jointed wood than practise close pinching, as the finest fruits are borne on extensions.

Early Forced Planted-out Fig Trees.—The trees planted in narrow inside borders and started early in the year are commencing growth, and may have the night temperature raised to 55°, 60° to 65° by day from fire heat, with an advance from sun heat and free ventilation to 70° or even 75°. Syringe twice a day, and see that the borders are thoroughly moistened. If the trees are weak a drenching with liquid manure, not too strong, at a temperature equal to that of the house, will assist the growth.

Cherry House.—Ventilate early, for no fruit tree dislikes a close and moist atmosphere more than the Cherry. Maintain a night temperature of 40° to 45° as the trees come into blossom, 45° to 50° in dull cold weather, 50° in mild, increasing the ventilation from 50°, allowing a rise of 10° to 15° from sun heat, with full ventilation, closing at 55°. Syringe the trees and house in the morning and afternoon till the blossoms are somewhat advanced, but cease it before they expand, damping the paths and borders occasionally to maintain a genial condition of the atmosphere. Allow a little ventilation constantly at the top of the house. Trees in pots must have the necessary care in watering.

Strawberries in Pots.—The earliest plants have set the fruit fairly well, and being thinned to about half a dozen berries to each plant are swelling freely. The December plants have, however, been brought on slowly, and are commencing to flower strongly. These will give a far better crop of fruit than those started very early, providing air be freely admitted, the weaker flowers removed, and when the pollen is ripe each flower is lightly brushed over with a feather charged with the fertilising farina. After the fruit is set thin them to the number the plant is likely to swell perfectly, this being a matter for judgment, and must be regulated by the condition of the plant and variety. Whilst the fruit is setting 50° to 55° will be sufficient heat artificially, advancing to 60° or 65° with sun heat; but after the setting is effected remove the plants to a house with a temperature of 60° to 65° artificially, and 70° to 75° by day, supplying liquid manure until ripening commences, then employ water only and sparingly. Whilst swelling they require a moist genial atmosphere.

Successional plants must not lack water, but needless watering is highly prejudicial, therefore examine each plant and afford a supply only when required. The plants succeed best when brought on gently, a temperature of 50° artificially being ample. Examine the plants carefully for aphides, and if there be any trace fumigate moderately, taking care to have the plants perfectly clean before they come into flower.

Cucumbers.—Avoid overcrowding, keep the foliage thin, remove bad leaves and exhausted growths, stopping one or two joints beyond the fruit. Crop lightly, and secure clean growths as essential to free successional bearing. Keep the night temperature at 65° to 70°, and 75° by day, with 80° to 90° from sun heat, closing early in the afternoon, with abundance of moisture on bright sunny afternoons; this, with judicious applications of liquid manure in a tepid state will insure due nourishment and free growth in the plants and fruit.

Young plants may be transferred to the hillocks or ridges in the structure prepared for their reception, and soil having been in a few days to warm it should be pressed firmly about each plant, placing a stick to each, and securing to the lower or such wire as suits for training the

plants when grown on trellises. Shade for a few days from bright sun at planting, but not more than is absolutely necessary to prevent flagging.

Melons.—When the plants from seeds sown at the new year are sufficiently strong they may be planted in their fruiting quarters. The ridges or hillocks of soil should be made quite firm and had insufficiently long to become warmed through, then turn out the plants carefully, firmly pressing the soil about the roots, and keeping the collar slightly elevated. Place a stick to each plant and secure to the trellis, rubbing off all laterals appearing on the stem whilst quite small until the trellis is reached. Maintain a genial condition of the atmosphere by syringing surfaces other than the plants in the morning and afternoon. A night temperature of 65° to 70°, falling 5° on cold nights, 70° to 75° by day artificially, and 85° or 90° from sun heat will insure steady progress. Ventilation must be given very carefully, always in the early part of the day, closing so as to secure a good advance from sun heat in the early part of the afternoon. Seeds should be sown without delay for raising plants to be placed in frames, also for successional planting in houses.

Vines.—*Eyes and Cut-backs.*—Eyes may now be inserted, using pots, pans, or square pieces of turf. Select plump buds on firm, well-ripened wood, filling the pot or pan with rich friable loam; insert the eyes with a pinch of silver sand and about half an inch beneath the surface; plunge the pots in a bottom heat of 80°. Cut-backs should be placed in a house where they will have a temperature of 60° to 65° at night, and 70° to 75° by day. When they have started into growth shake them out and return to the same size of pot, using good friable loam, and give a rather close and moist atmosphere until re-established, when they should have a position near the glass, so as to insure sturdy, short-jointed, thoroughly solidified growth.

PLANT HOUSES.

Cyclamens.—Where a number of young plants have not been raised from seed for another season no time should be lost in sowing. The seed should be sown in pans of moderately light soil and just covered, the pan or pot containing the seed being watered, and then covered with a square of glass. Place the seed in a temperature of 65°, and germination will soon take place. When the young plants are up air must be admitted gradually, and the pot or pan should be put close to the glass on a shelf, which will prevent the seedlings becoming drawn.

Clivias.—Seedlings of last year that have been in a cool house may be repotted into larger pots, using a compost of good loam, leaf mould, decayed manure, and sand. The young plants may then be placed where they can enjoy a temperature of 55°, when they will soon start into growth, and before the end of the season should make strong plants. Established plants that have been kept cool and on the dry side may be gently forced into bloom. Where a good stock of these plants is grown a few may be introduced at a time, in order to form a succession. Well grown single plants in 6 or 7-inch pots when in flower are most useful for room decoration, where they will stand without the slightest injury.

Azaleas.—The varieties of *A. amoena* and *A. indica* as they finish blooming should be placed in a vinery having a warm moist atmosphere. If placed again in the greenhouse the plants are seriously checked and make their growth late, rendering them unfit for early forcing another season. When placed in warmth they soon commence active growth, and if they need more root room should be potted directly the roots display signs of activity. If the plants are in pots large enough when their roots are active give them a little chemical manure on the surface of the soil. Two dressings during the growing season will be ample.

Lantanas.—These should have enjoyed a good rest, and may be started again into growth. Prune the shoots well back, and place the plants where they can be syringed once or twice daily, and where the temperature ranges 50° to 55°. The plants under these conditions will soon start, when they may be repotted. The old balls should be reduced by one-half and the plants placed again in the same sized pots in loam. Very little water is needed until the plants are growing and rooting freely.

Freesias.—As these cease blooming, if the bulbs are needed for another year they should not be cast on one side in any out-of-the-way place. The pots ought to be arranged on a shelf where the temperature ranges at least 45°, and the plants supplied with water when they need it. A little chemical manure applied to the surface of the soil will assist in developing the bulbs for another season. These plants increase rapidly, and even the small bulbs soon develop into a flowering size.

Grevilleas.—Plants that have done duty and have become shabby may be cut close back. Some growers throw them away, but this is a mistake, as they make even better plants the second season than the first. If two or three shoots are needed these can be retained, and for some purposes are to be preferred to those with a single one. If plants with a single stem only are needed disbudding must be practised.

Zonal Pelargoniums.—Plants that have flowered and have been kept dry may now be pruned close back and placed in gentle warmth to break again into growth. If increased stock is needed cuttings may be inserted singly in thumb pots, and will root freely on a shelf if a temperature of 65° can be maintained. Young stock in 2½ and 3-inch pots may be placed in 5-inch. Press the soil firmly in the pots, and place the plants on a shelf where the temperature ranges about 50°; they will soon start into growth and flower.

Daffodils.—Plants that have bloomed in boxes should, after the flowers have been removed, be stood in a light place in a cool house. If

watered until the weather is sufficiently genial for placing them outside they will mature fair bulbs for planting outside. It is surprising how rapidly they increase in numbers. If the soil in which they were boxed was good no feeding is necessary. Nearly all the varieties of Narcissus that were potted or boxed fairly early will now flower freely enough. Do not give them too much heat at first, but when fairly on the move they may be placed into the forcing house.

Prunus sinensis fl.-pl.—As these go out of flower they should be cut close back and arranged in any house where an intermediate temperature can be maintained. These plants grow freely, and are very easily forced into bloom. *P. triloba* does not force so freely, and when forced loses to a very large extent that beautiful pink colour which renders it so attractive when flowered in a cold house.

THE BEE-KEEPER.

APIARIAN NOTES.

THE WEATHER.

THE weather last month has been the most severe I ever experienced in January. During the past month the thermometer here never rose above 32°, while the night temperatures ran between 5° and 10°, and only once so low as the latter.

QUEEN REARING.

The good qualities of queens depend entirely on their ovaries being capable of bringing forward the full number of eggs, and a large-sized sperm sac well filled with spermatheca. These properties exist in very small as in very large queens. I advise bee-keepers to raise all queens intended for stock in hives in good condition, having ample honey, pollen, and bees, at any time between the months of May and August, when drones are numerous. I may say, however, some of the most prolific and long-lived queens I ever possessed were raised in poor-conditioned hives.

The course I pursue in selecting or rejecting queens is to select queen cells on which a large quantity of wax has been expended, and that is prettily indented, rejecting those approaching to smoothness. From smooth cells I have had queen cells which commenced laying in less than an hour after creeping out of the cell, and as a matter of course such queens remain drone-breeders for life. I do not hesitate to keep queens which were raised from foul-broody stocks, and never had a recurrence of the disease; but it is different with those affected with chloric dropsical fever.

Bee-keepers who are prepared to make the most of their bees by raising queens early should set about doing so at once by getting ready nuclei boxes and other things required to make them miniature hives. My boxes hold four frames—one containing a queen or queen's cell, well covered with bees and filled with brood placed in one of these boxes, and the three other frames filled with foundation make capital nuclei; but two or more frames are better. Small as these nuclei are, when more than one queen is present they are liable to swarm, therefore it is advisable not to have more than one queen or one queen cell.—A LANARKSHIRE BEE-KEEPER.

MARKETING HONEY.

OWING to a variety of causes there has been a much greater difficulty in finding a ready market for really good samples of English honey than has previously been experienced, and from the many inquiries I have had from bee-keepers in different parts of the country I find the complaint is pretty general that there is still a quantity of honey on hand for which customers cannot be found except at ruinous prices.

The past season was not a good one; indeed, in some districts it was very bad, so that it cannot be owing to the glut of English honey that is on the market. It therefore behoves bee-keepers to seek the cause and, if possible, the cure for this state of things. One of the chief is the great quantity of foreign honey that is brought into this country, very little of which is retailed as foreign. One large dealer lately told me he was buying it at 35s. per cwt., which left a good profit even when sold at store prices. The public will buy because it is cheap; they do not mind about the quality, he said.

Bee-keepers should endeavour to create a local trade in their own neighbourhood among the consumers, as this is much better than sending it a long distance to a tradesman at a low price. It is surprising the quantity that can be disposed of in this way if put up neatly in saleable form, and made attractive. The 1 lb. screw-top glass jars are recommended; they are rather more expensive than the others, but are much more serviceable.

The different qualities of honey should always be graded, as there is a marked contrast in the colour and flavour of honey obtained from field Beans, white Clover, and Limes. These are the sources from which I obtain the chief of my honey harvest. The former is brown, and of strong flavour. White Clover is of splendid flavour and perfect in colour, whereas that obtained from the Limes is of a pale yellow tinge, which gives it a pleasing appearance. These if bottled separately are much more useful, as some people prefer the stronger-flavoured brown honey, and *vice versa*. Very few people will buy from the shops if they know a genuine article can be procured from a neighbouring bee-keeper.

For larger quantities wide-mouthed brown pot-jars are useful. These are made with a cover, to hold from 7 lbs. to 9 lbs. Comb honey in 1 lb. sections, if well sealed, will find a ready sale among the consumers, particularly in the late summer and early autumn; but few tradespeople care to stock them, owing to their liability to damage. If they are glazed it is a great protection, but it would add to their price. Bad trade, too, affects the sale of honey very considerably. It is, however, better to keep a stock in hand unless a fair price can be obtained, as there may be a scarcity another season.

A few years ago there was no difficulty in obtaining 1s. per lb., and even more, for honey that was very inferior to what is now obtained under the modern system, for with the exception of Heather honey such prices are a thing of the past.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

J. E. Barnes, Exchange Street, Norwich.—*General Seed List*.
Dickson, Brown & Tait, Corporation Street, Manchester.—*Farm Seeds*.
Harrison & Sons, Leicester.—*Seed Catalogue*.
R. Owen, Floral Nursery, Maidenhead.—*Chrysanthemum Novelties*.
J. Watkins, Pomona Farm, Withington, Hereford.—*Fruit Tree, and Cider and Perry List*.
E. Webb & Sons, Wordsley, Stourbridge.—*Farm Seeds*.
J. Yates, 29, Little Underbank, Stockport.—*Seed List*.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Dressing Vine Rods (Kidderminster).—The ingredients recommended by Mr. H. W. Ward in the second paragraph of his letter on page 102 last week are sufficient for mixing in eight gallons of water. The word "eight" was inadvertently omitted by the printers.

Temperature for Dendrobium densiflorum (Books).—The Dendrobium mentioned will be quite safe if the temperature does not go below 40° during the winter, but 50° as a minimum is much better for these evergreen kinds. Their natural flowering season is about April or May.

Steam from Zinc Plate (W. L.).—The steam from a heated zinc plate is more or less injurious to vegetation. This mainly arises from the generation of the water vapour at a high temperature, and the fineness of its particles, which become rapidly diffused, and coming in contact with the foliage of plants has a more or less scalding effect. The leaves and other parts of plants being also much colder than that of steam rapidly condense the moisture, which interferes with their respiration, and has a weakening tendency. It is bad practice, therefore, to syringe highly heated surfaces. Zinc, so far as we are aware, does not give off any fumes injurious to plants, but it is not a desirable substance to use for heating purposes, as certain decomposition takes place under the influence of moisture, and such moisture may contain deleterious matter under steaming.

Grafting Pear Tree (C. A.).—A graft may be placed on each branch, cut back if there is room for training the growth, otherwise only graft those branches that are best located for affording growths from the grafts to cover the space equally at proper distance apart—namely, 12 inches. It is best to cut off the whole head and put on scions so as to form a fresh tree as soon as practicable.

The Winter Moth (F. B.).—The attempts that have from time to time been made to destroy the eggs of the winter moth have been failures, except by killing trees as well, hence it is useless to apply any insecticides for that purpose now. Paris green, applied at the end of March or early in April and continuously as required, will keep the trees clean. The strawsoniser is answering well in some parts of Australia in destroying locusts; where this cannot be used an engine by Boulton and Paul, with one of Stott's sprayers, will prove extremely useful. In this apparatus it is impossible for the Paris green to settle, but is kept in constant suspension by an ingenious internal contrivance. The slacked lime and soot you suggest are utterly useless for application to destroy the eggs. It is an open question when the insects cease depositing eggs.

Muscat Vine Roots Decayed (J. P. M.).—There is neither fungi nor other micro-organisms of an injurious nature on the Vine roots, but there are Bacterium termo and Spirillum tenue, which are found in most soils holding putrefied remains of plants in solution. The small mycelial threads appear to be those of the mould (Mucor) common on dead organic matter, and are not baneful to healthy organisms, but if anything beneficial by converting the putrefactive matter into inorganic compounds. The possible cause of the decay of the roots is a sodden, sour, effete soil, which may have been occasioned by over-rich material or an excessive supply of liquid manure, producing a close soapy condition of the soil. The only thing we can suggest is lifting the Vines, removing all the old soil, cutting away the dead portions of the roots, and laying the sound parts in fresh sweet soil over good drainage. If attended to without delay there is ample time to improve the condition of the Vines this season.

Onion Grubs (L. B. J.).—It is difficult to prevent the attacks of the Onion maggots. The insects pass the winter in a pupa state in the ground, and in this form are so well protected by their cases that it is not easy to destroy them. Ammoniacal liquor from gasworks, and solution of paraffin of the strength of an ounce of oil to a gallon of water, and poured over the ground, are more or less effective and also act as a manure. It is well to have Onion beds as far distant as possible from where the crops were last grown and attacked. It is a good plan also to dig the ground deeply a day or two before sowing, as then many of the pupa cases are placed so far below the surface that the flies cannot readily emerge from them, and thus deposit eggs for producing future crops of maggots. Very heavy dressings of lime and soot are also advisable before sowing. Deep drills drawn and filled with wood ashes, and in these sowing the seed, is a method that has been successfully adopted by some cultivators. Plants raised in boxes under glass and transplanted often escape injury by the enemy.

Camellia Buds Falling (S. D.).—Defective root action is very frequently the cause of this, and it may be induced by a variety of circumstances, the most common cases occurring in plants that are placed outdoors after the buds are set. The pots from exposure to sun or drying atmospheric influences become heated or much dried, and the roots near the sides perish. Sometimes the soil becomes dry, and the plants suffer more outdoors on account of the greater evaporation from them than under glass. This causes a check, resulting in the buds being cast at a later period. A frequent cause of the buds falling is a saturated condition of the soil effected by rain during cold wet periods. Placing also outdoors causes the buds to be more or less indurated, so much so that their sap vessels become contracted, and the sap is diverted from the bloom to the wood buds, growth extending and buds falling in consequence. The sudden change, too, that the plants experience when placed under glass in the autumn, especially in a dry house, often causes the buds to fall, and to prevent this many gardeners syringe the plants, and keep the atmosphere somewhat moist for a time after housing.

Puff-balls in Mushroom Bed (E. R.).—The specimen sent is a Lycoperdon. Probably all the British Puff-balls are wholesome when gathered young. If on opening them the substance is pulpy and white, it is in the right stage for dressing; but if it be marked with yellowish stains, it is already too far advanced towards maturity, and must be rejected. They must be cooked quickly after gathering. Mr. Cooke gives a vivid account of the enjoyment afforded by one of these Puff-balls:—"A gardener brought us a large Puff-ball, equal in size to a half-quartern loaf, and which was still in its young and pulpy state, of a beautiful creamy whiteness when cut. It had been found developing itself in a garden at Highgate, and to the finder its virtues were unknown. We had this specimen cut in slices of about half an inch in thickness, the outer skin peeled off, and each slice dipped in an egg, which had been previously beaten up, then sprinkled with bread-crumbs, and fried in butter, with salt and pepper. The result was exceedingly satisfactory; and finding this immense fungus more than our family could consume while it remained fresh, we invited our friends to partake of it, and they were as delighted as ourselves with the new breakfast relish, to them, as to us, the first, but we hope not the last, experiment on a fried Puff-ball." Puff-balls are, of course, not what you require

but pink gilled Mushrooms; and we can only attribute the presence of the interlopers to Lycoperdon spores in the soil or manure that have been employed in making the Mushroom beds.

Asters in Pots (R. S. O.).—To grow Asters successfully in pots the seeds must be sown during March or early April (as you require the plants to bloom early or late) in pans, placing in gentle heat as that of a hotbed. When the plants appear keep them near the glass, and well ventilated to prevent drawing. Pot them singly in 3-inch pots, returning to the hotbed, and keeping rather close and shaded until established. After this admit air freely, the main points being to keep them slowly growing, and not allowing them to become pot-bound before removing into larger pots. If sown in March the plants will be strong and well hardened by the beginning of May. An 8-inch pot will meet the requirements of single plants, a 9-inch trebles, and a 10-inch or 11-inch will answer for five plants. The soil may be composed of three parts turfy loam and a third of thoroughly decayed manure or leaf soil. The plants should be potted rather firmly in well-drained pots, and have a light and open situation if continued under glass, which we do not advise, but would assign them a sheltered position outdoors on ashes. After the plants fill the pots with roots water them with weak liquid manure. If sown during early April the plants will require their largest pots by the close of May or early in June.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (E. L.).—1, Euphorbia splendens; 2, Adiantum Pacotti; 3, Ficus repens. (F. S.).—1, Spiraea palmata; 2, Prunus sinensis fl.-pl. (J. C.).—1, Cattleya Trianae; 2, Cypripedium Spicerianum; 3, Dendrobium Wardianum. (E. H.).—Cypripedium villosum, good form. (A. B.).—1, Cupressus Lawsoniana erecta viridis; 2, Thujaopsis dolabrata; 3, Retinospora plumosa aurea; 4, Cotoneaster microphylla; 5, Cryptomeria elegans; 6, Garrya elliptica.

COVENT GARDEN MARKET.—FEBRUARY 6TH.

THERE has been practically no alteration since last week. Trade very quiet owing to frost and short supplies of home produce.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.	
Apples, per half sieve ..	1	6	to	4	6	Lemons, case ..	10	0	to 15	0
„ Nova Scotia, per barrel..	10	0	21	0	Peaches, per doz. ..	0	0	0	0	
Grapes, per lb. ..	1	0	2	0	Plums, half sieve ..	0	0	0	0	
Cobs, per 100 lbs. ..	20	0	21	0	St. Michael Pines, each ..	2	0	6	0	
					Strawberries per lb. ..	0	0	0	0	

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb. ..	0	10	to	1	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	0	Onions, bushel	3	6	4	0	0
Carrots, bunch	0	3	0	4		Parsley, dozen bunches ..	2	0	3	0	0
Cauliflowers, dozen ..	1	6	3	0		Parsnips, dozen	1	0	0	6	0
Celery, bundle	1	0	1	3		Potatoes, per cwt.	2	0	4	0	0
Coleworts, dozen bunches	2	0	4	0		Salsafy, bundle	1	0	1	5	0
Cucumbers, dozen	2	0	8	0		Seakale, per basket	1	3	1	9	0
Endive, dozen	1	3	1	6		Scorzonera, bundle	1	6	0	0	0
Herbs, bunch	0	3	0	0		Shallots, per lb.	0	3	0	0	0
Leeks, bunch	0	2	0	0		Spinach, bushel	1	6	3	0	0
Lettuce, dozen	0	9	1	0		Tomatoes, per lb.	0	2	0	6	0
Mushrooms, punnet	0	9	1	0		Turnips, bunch	0	3	0	4	0

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	4	0	to	6	0	Poinsettia, dozen blooms ..	4	0	to	6	0
Azalea, dozen sprays ..	0	6		1	0	Pyrethrum, dozen bunches	2	0		4	0
Asparagus Fern, per bunch	2	0		3	0	Roses (indoor), dozen ..	0	6		1	0
Bouvardias, bunch ..	0	6		1	0	„ Tea, white, dozen ..	0	6		2	0
Carnations, 12 blooms ..	1	6		3	0	„ Yellow, dozen ..	2	0		3	0
Chrysanthemums, doz. bchs.	4	0		12	0	„ Safrano (English), doz.	1	3		2	0
doz. blooms	1	0		4	0	„ Maréchal Niel, doz. ..	3	0		6	0
Daffodils, (dbl.), doz. bchs.	16	0		18	0	„ (French), yellow, doz.	1	6		2	0
„ (single), doz. bchs.	24	0		30	0	blooms ..	1	6		2	0
Eucharis, dozen ..	4	0		6	0	„ (French), Red, dozen	2	0		2	6
Gardenias, per dozen ..	6	0		8	0	blooms ..	4	0		6	0
Geranium, scarlet, doz.	6	0		8	0	Smilax, per bunch ..	4	0		6	0
bunches ..	5	0		6	0	Stephanotis, dozen sprays	4	0		6	0
Lilac (French) per bunch	5	0		6	0	Tuberose, 12 blooms ..	0	4		0	6
Lilium longiflorum, per	6	0		9	0	Violets (English), dozen	1	6		2	6
dozen ..	1	6		3	0	bunches ..	5	0		6	0
Marguerites, 12 bunches ..	4	0		6	0	Violets (French), Parme,	2	0		4	0
Maidenhair Fern, dozen	1	6		12	0	per bunch ..	2	0		4	0
bunches ..	6	0		9	0	Violets (French), Ozar, per	2	0		4	0
Orchids, per dozen blooms	6	0		9	0	bunch ..	2	0		4	0
Pelargoniums, 12 bunches	0	6		1	0	Violets (French), Victoria,	2	0		4	0
Primula (dbl.), doz. sprays	0	6		1	0	dozen bunches ..	2	0		4	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Ferns, in variety, dozen ..	4	0	to 18	0	
Aspidistra, per dozen ..	18	0		36	0	(small) per hundred	4	0		6	0
Aspidistra, specimen ant	5	0		10	6	Ficus elastica, each ..	1	0		7	0
Chrysanthemums, per doz.	4	0		8	0	Foliage plants, var., each	2	0		10	0
„ large, per doz.	9	0		18	0	Lycopodiums, per dozen ..	3	0		4	0
Cyclamen, per dozen ..	9	0		12	0	Marguerite Daisy, dozen ..	6	0		12	0
Dracæna, various, dozen ..	12	0		30	0	Myrtles, dozen ..	6	0		9	0
Dracæna viridis, dozen ..	9	0		18	0	Palms, in var., each ..	1	0		15	0
Erica, various, per dozen ..	9	0		18	0	„ (specimens) ..	21	0		63	0
Euonymus, var., dozen ..	6	0		18	0	Poinsettia, per dozen ..	10	0		15	0
Evergreens, in var., per	6	0		24	0	Primulas, per dozen ..	4	0		6	0
dozen ..	6	0		24	0	Solanums, per dozen ..	10	0		12	0



PROFITABLE LIVE STOCK—SCOTCH CATTLE.

THE superiority of Scotch beef has obtained such general recognition that it has a special quotation on the London markets, the price always being higher than that of any other beef. This is an outcome of good management, affording proof of the profit of really intelligent breeding and feeding. It has reference to the prime Scotch beasts sent regularly to Smithfield, and not to just a few extra choice beasts specially fed for exhibition. This is the fact, but results at cattle shows in recent years, where the leading breeds are brought into competition, tend to emphasise the cattle dealers' opinion by placing Scotch beasts before all others.

To take an example we may point to the remarkable success of Mr. Clement Stephenson, who in 1893 and 1894 won the champion prize at Birmingham, with Bridesmaid of Benton in 1893, and Benton Bride last Christmas, both out of the same Aberdeen Angus cow—the famous Bride 13,343. Since the last cattle show it has been announced that Bride has another calf, “a most promising one, just as fine as could be. Bride is certainly a grand cow for a breeder to own. She is very short-legged and wide-bodied, milks like a good dairy cow, never gives any trouble, settles to the first service, and produces a good calf every year. She was calved December 7th, 1886, and this is her seventh calf.”

Such a description causes us to regret that every heifer from such a cow has not been saved for breeding. But when it is remembered that Mr. Stephenson must have received about £1000 in prizes, and for this and the sale of Benton Bride alone, it must be admitted that he has a grand incentive to try again in the same direction. It was the general opinion that Benton Bride was superior to those other prizewinners of Mr. Stephenson's—Bridesmaid of Benton, Achievement, and Luxury. Her form was as near perfection as we shall ever see, flesh well and evenly laid on, fine bone, short legs, frame wide and deep, a model of symmetry, and yet so massive that there seemed more of her than the reserve beast, the Queen's shorthorn steer Masterpiece. Her age was about thirty-four months, and she weighed 16 cwt., 2 qrs., 21 lbs.

It is certain that the exhibition of such magnificent examples of this breed has done much to induce more general attention to its high value. The sales of Aberdeen Angus last year were remarkably successful, many being purchased to form the nucleus of fresh herds both in England and Ireland, where an association has been formed for the extension of this excellent type of the polled breeds in that country. Quality and merit have been kept well in view in the development of the Aberdeen Angus in Scotland; it will rest with breeders in the sister countries to maintain the high standard of excellence to which they have been brought.

That older type of polled breeds, the Galloways, is well known to repay one for all the care that can be bestowed on it. In no breed does selection and breeding tell better, or prove more profitable. These are remarkable for the long silky black hair—in such striking contrast to the short coats of the Aberdeen Angus, for points of excellence all over them—long sides, well-sprung ribs, well-rounded hips, straight and broad backs, width of chine, deep prominent chests, and short legs. Many of them are good milkers. For hundreds of years have they been sent over the border into England in very large numbers. On the rich pasture of the midlands they answer so well that they become larger and heavier than in Scotland.

They are very hardy, bearing exposure better than short-coated cattle; but even they with their long shaggy coats are the better for shelter. So kindly are they that a Galloway cow is said to cost £2 or £3 a year less to keep than a shorthorn.

In 1892 a remarkable feat was achieved at the Smithfield Cattle show in the winning of the champion prize by a cross-bred, a blue-grey from a Galloway cow by a shorthorn bull. Blue greys are in high favour on the border for the early maturity, choice quality, and heavy weight of cattle from this cross. A brisk demand for blue greys sprang up after the show of 1892, affording one more instance of how prompt graziers are to adopt and turn real improvements in breeding to account. We have no doubt that if only really well-bred cattle on which profit is a certainty could be had in sufficient numbers there would be an end of the sale of mongrel breeds on our markets. Ample materials have we for breeding with for such a purpose, let us turn them to full account and so have really profitable live stock, to the exclusion of all that is inferior.

WORK ON THE HOME FARM.

Very trying has the weather been for all live stock. As we are writing there is snow lying everywhere several inches in depth, and a bitter east wind, with 6° of frost, at midday. Animals exposed out in the open in such weather, if at all low in condition, have a severe struggle for bare life. Every scrap of food they can get goes to support vital heat—the heat on the maintenance of which life itself depends. What wonder, then, if many of them die outright, under such insane exposure, such reckless mismanagement, such shameful cruelty. To those having and using proper means of shelter, we advise making a close inspection now of every enclosure, in order to ascertain if the yards and hovels are really snug. It is not an uncommon thing to see yards with nothing but posts and rails; such yards are wind-swept, the cattle would find more shelter in pasture with a thick hedge to break the force of the wind. Or hovel shelter may be very inadequate. We have actually seen at a so-called model home farm hovels for stall-fed fattening beasts so narrow that the hind quarters of the beasts were barely covered by the eaves, and they must have frequently suffered from wind-driven rain and snow, one side of the hovel being left open.

Now is the time to look into all such matters, while the yards are full and faults are readily detected. It is the yards shut in by buildings or enclosed by walls, boarding, or corrugated iron sheeting that are worthy of the term “snug,” which afford cattle real shelter. Make the shelter of buildings equally efficient, keep out wet and cold cutting draughts, keep the floors dry and the litter clean, then indeed will the food be turned to best account. This may be repetition of advice often given before, but so long as we see so much negligence and evidence of so little thought in the management of live stock, we are bound to persist in calling attention to the fault and its consequences. It is a good plan during such cold weather to improve the quality of the dietary by using more crushed Oats or mixed corn. This is always eaten greedily, and it can be followed by straw, hay, chaff, roots, only make sure of the more nutritious food being eaten first. A free hand with food now is true economy; it keeps the store beasts steadily improving, and in the dairy cows keeps up a full flow of milk.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude. 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1895. January and February.		Barometer at 32°, and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	27	29.815	24.3	23.3	N.	35.4	31.1	20.2	43.9	20.0	0.092
Monday ..	28	29.984	27.4	26.5	N.W.	34.9	31.1	22.4	56.6	22.0	—
Tuesday ..	29	30.261	23.9	23.3	N.W.	34.8	30.6	17.2	33.9	16.2	—
Wednesday	30	30.465	21.8	21.3	N.	34.3	32.3	20.2	60.0	18.1	—
Thursday ..	31	30.206	29.6	28.4	N.	34.1	34.2	21.1	57.2	19.7	0.090
Friday ..	1	30.021	26.4	25.9	N.	34.0	33.8	22.4	38.9	19.1	0.062
Saturday ..	2	29.931	33.3	33.0	N.E.	34.1	36.3	26.9	41.8	25.3	0.010
		30.098	26.7	26.0		34.5	32.8	21.5	47.5	20.1	0.254

REMARKS.

- 27th.—Sun shining through fog all day; snow showers from 7.30 P.M.
 28th.—Snow showers early and till 9 A.M.; unbroken sunshine from about 11 A.M.; clear night.
 29th.—Fog all morning, but very little in afternoon and evening.
 30th.—Alternate sunshine and sprinkles of snow in morning; cloudy afternoon.
 31st.—Fine early with solar halo at 10 A.M.; heavy snow shower at 11.15, sun again at 11.30, snow and soft hail from 11.55 to 0.45 P.M., and frequent slight snow showers during the rest of the day and night.
 1st.—Snow in small hours; overcast all day, with occasional sprinkles of snow.
 2nd.—Snowing more or less from 1 A.M. and at intervals all morning; overcast afternoon and evening.
 A very cold week, owing chiefly to uniform low temperature, and not to any one excessively low reading, the lowest 17.2° having often been exceeded at this station.
 —G. J. SYMONS.

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8 Really Good Varieties—Queen of England, white; Blanche Ferry, pink and white; Princess Beatrice, pale pink; Apple Blossom, apple blossom tint; Orange Prince, orange pink; Splendour, rich deep rose; Cardinal, bright cardinal; Countess of Radnor, pale heliotrope, 25 seeds of each, 1s. 3d.

7 Extra Choice and Newer Varieties—Emily Henderson, fine large white; Venus, pale lemon flushed with pink; Mrs. Gladstone delicate pink; Her Majesty, soft rosy pink; Lady Penzance, bright pale rose; Firefly, bright glowing crimson; Monarch, large bronzy purple, 25 seeds of each, 1s. 6d.

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Please mention this Paper



Journal of Horticulture.

THURSDAY, FEBRUARY 14, 1895.

THE FROST AND THE FUTURE.

AT the moment of writing frost is king and rules with unwonted severity. Zero! zero! zero! is what we have seen recorded day by day, varied by indications of still greater intensity of few or many degrees below zero, according to the locality, the position of thermometers, and their individual peculiarities. Yet making full allowances for the disturbing influences of the nature suggested, and which preclude the returns in the majority of cases being regarded as strictly accurate, the frost of February, 1895, will still rank among the most severe that have been experienced for several years. Coming after an autumn of abnormal mildness, in which vegetation did not seem able to go to rest, the extreme cold has, perhaps, been felt the more keenly. Its area has also been wide, whilst its continuance, depart when it may, has been long enough to satisfy most persons except skaters and coal dealers. If rime and fog may be regarded as the precursors of a change we may hope to have seen the beginning of the end, for we have had the blackness of night in London (on the 9th inst.), whilst in the suburbs every twig and spray was laden with chaste crystals.

For the full effects of the arctic severity to be appreciated we must wait, though its inconveniences are only too apparent. In towns the freezing of water in supply pipes and gas in the mains cause discomfort to thousands, yet it is still more saddening to feel that thousands more have been to a serious extent deprived of warmth and food, and some even of life. It is on such occasions as these, when work is practically at a standstill, that the evil is seen in all its magnitude of the crowding of our working-class population in cities and towns; but how to avert this is a problem yet unsolved, and a serious problem, as we shall probably see in the not far distant future.

To return to the frost, though in London it has been less severe than in the midlands and the north, thermometers have registered 28° of frost, and in the suburbs the cold has fallen to zero. The Thames has been covered with ice floes, slabs piled on slabs stopping traffic and presenting a veritable arctic scene. Seagulls have come in thousands in search of food, and

where birds have been fed in suburban gardens they have come in shoals—thrushes, fieldfares, blackbirds, with others—and fought for the scraps and the crumbs scattered far from their haunts and where in the ordinary course of things such birds are never seen. It is somewhat of a mystery how so many ascertain so quickly where the food is spread; yet, by whatever means the news may be conveyed, it is a pity the birds should die, for even if they do take a few Strawberries from gardens in the summer, do they not take Strawberry and other enemies too in the form of snails and various depredators hidden from human eyes?

But though the frost in London has been unusually keen we have to take a wider survey to comprehend its full intensity. In Scotland records are published of the cold reaching 12°, and in some cases more, below zero, and it seems to have been much the same in Derbyshire, Leicestershire, Lincolnshire, and Yorkshire. Many are the trees, shrubs, plants, and garden crops that must suffer by the extreme visitation, but they will not show it fully till the time for sap movement in the spring. In some districts the snow will have proved its protective value, for there appears to have been abundance in some localities, and indeed too much from an obstructive point of view, for we read of blocked roads and railways and snowed-up villages, for the inhabitants of which food could not be conveyed. In the vicinity of London there have been no such obstacles, the greatest snowfall being in many places about 2½ inches, and accumulations not exceeding 3 inches. It is therefore possible that the damage to many plants and vegetables may be even greater in the south than the more northerly parts of the kingdom.

Great, too, must have been the difficulties of gardeners and amateurs innumerable, in maintaining the requisite temperature in glass structures, or indeed excluding frost from many of them, and there are doubtless many disasters to be deplored. These may in most cases be attributed to inadequate provision either in the size of boilers or too limited areas of heating surface, known as "short of piping"—a misfortune too commonly experienced. As the strength of the chain is determined by the weakest link, so should the provision made for the warming of glass structures be based on the severest frosts which are likely to occur in this country. The last great frost, in the beginning of the year 1881, brought many disasters, and taught significant lessons, heeded by many owners of glass structures, but not by all. History is now repeating itself, and those who are induced to make good all defects of the nature indicated will be gainers in the end—gainers in the fuller, more certain, and better supply of what they need, as well as gainers financially by the saving in fuel which would otherwise be blazed away by the roaring fires which have to be kept up all night long by constant attendance, whereas with sufficient boiler power and piping not half the consumption of fuel would be necessary. There is no lack of choice in boilers suitable for all positions and kinds of fuel, while the increased cost involved in providing piping exceeding the "absolutely necessary" limit, as based on average temperatures, is the reverse of formidable. It is unwise because unsafe, and may be most costly, to base calculations in this work on averages at all, as this amounts to spending money for a breakdown, which is only a question of time when the frost king comes his rounds again and makes his power felt, as in the case of the present February winter. All defective means of heating should be made good as soon as circumstances permit, and new structures be sufficiently equipped for doing the work that is expected of them when the next strain comes.

Also, too, would we venture to suggest the advantage of timely equipment for the most effective discharge of seasonable routine operations. A period of rest is the time for making ready for best meeting coming demands. Much work is planned, such as in planting, that remains undone, and there may be a disposition to let a considerable amount of this stand over till another year. That may be far from being the better plan, and if what is

required be ordered in readiness for arrival when the favourable time comes, the results may be even very much better than if the work had been completed just before the frost. When and where much spring planting has failed, the cause of it can in most instances be traced to leaving the dispatch of orders till the last moment, and thus letting favourable opportunities come and go before what is required can arrive at its destination. This apparently small mistake has in many instances led to great disappointment and loss that might have been averted.

Severe and protracted frost of necessity brings much work to a standstill, and some for which there is not the least need. It is a pity this should be so, but so it is. Take, for instance, the ordering of seeds of various kinds. They must be had if flowers and vegetables are to be produced in due season, yet through want of thought, or of knowledge as to the facts of the case, hundreds of men in seed-supply establishments are kept in semi-idleness during periods of frost, and then when the weather changes, and the seeds are wanted, are compelled to work nearly all night long under the unhealthy conditions of a gas-impregnated atmosphere, while gardeners are being prejudiced because they cannot lay hands on the seeds at the most favourable moment for making the best of them. Seeds cost not one penny more through being ordered early, and are as safely and soundly kept in the drawers of the purchaser as the vendor, while the workers in warehouses and shops are benefited by steady action—the result of timely orders, while gardeners and amateurs are advantaged by having possession of seeds well in advance of the time of sowing.

Though a check has perforce been given to progress in gardening by the frost that will be memorable, activity will be all the greater when it goes and spring-time comes to cheer us on—to incite new hopes and stimulate to fresh endeavours. Never was greater interest manifested in gardening, both in its useful and ornamental aspects than now, and never were so many persons engaging in the pleasant, wholesome, mind-inspiring, and health-giving occupation. We would wish for all, now that "winter lingers on the lap of spring," a season teeming with an abundance of what they desire to produce; and one way of bringing about the realisation is to file the present issue of the *Journal of Horticulture*, as we take the liberty of thinking it is full of good things, both in advertisements and literary matter, and we have reason to believe there are others equally good to follow for meeting the varied tastes of readers all over the kingdom and beyond its shores. May 1895, after this rest at the beginning, prove in the end a good year to them all.



LÆLIO-CATTLEYA DECIA.

MANY charming hybrids have emanated from the nurseries of Messrs. J. Veitch & Sons, Chelsea, and among these may be included the beautiful Lælio-Cattleya Decia, a bloom of which is depicted in the illustration (fig. 21). This is the result of a cross between Cattleya Dowiana aurea and Lælia Perrini, the first named being the pollen parent. In many respects the flower resembles a Lælia more than a Cattleya, except in size. The sepals and petals are very pale rose, the lip at the base being rosy mauve, with a deep purplish crimson lobe. This fine hybrid was exhibited by Messrs. J. Veitch & Sons at the Drill Hall, Westminster, last year, and a first-class certificate was awarded for it by the Orchid Committee of the Royal Horticultural Society.

CŒLOGYNE FLACCIDA.

THE specific name of this Cœlogyne refers to the drooping character of the inflorescence. The racemes are many-flowered

and of considerable length, the flowers being set rather widely apart. The flowers are white, except the lip, which has the yellow blotch common to most *Cœlogynes*. The pseudo-bulbs are 4 to 5 inches in length, the dark green lanceolate leaves which are produced in pairs are from 8 to 10 inches long. The plant has an erect habit of growth, and when in flower is very attractive. The flowers are produced very freely in winter and early spring, and last a long time in full beauty. *C. flaccida* requires an intermediate temperature—the *Cattleya* house suits it very well—and should be well rested. It was introduced from Nepal by Dr. Wallich, and first flowered at Wentworth in 1833. A handsome plant carrying ten spikes is now in flower at Messrs. J. Veitch & Sons, Chelsea.—A.

MASDEVALLIAS.

THERE is probably no more interesting or fascinating genus of Orchids in cultivation than *Masdevallias*, and certainly no other

The roots then, and how to conserve them, must be the grower's first care. Anyone who has had a little experience with Orchids will have noticed how these delight in rambling about over the hard porous surface of the pots where they are fully exposed, often quite dry, and have nothing of a close nature about them. Here then is the cue for root preservation, and in preparing the compost for these beautiful plants growers must keep in mind the necessity of providing for a constant supply of air to the roots, at the same time checking too rapid evaporation, and providing the necessary nutriment. The plants must not be dried at the roots at any season, but no stagnant moisture must be allowed to collect about them. They all thrive in a cool house during the summer, and must have a light airy position shaded from bright sunshine.

The winter temperature must not be allowed to fall much below 50° for the *Chimæra* group, while 45° is quite low enough for the



FIG. 21.—LÆLIO-CATTELEYA DECIA.

contains such a wondrous variety of form or beautiful combinations of colouring.

The lover of the grotesque will delight in such exquisite little gems as *M. Estradæ* and *M. trochilus*, or the wonderful *M. Chimæra*, while those who look for brilliant colour and simple form will find ample to please them among the *Harryana* and *Lindeni* section. *Masdevallias* as a genus are not difficult to cultivate, but they show the results of indifferent treatment sooner than many others. For instance, an *Odontoglossum*, or even a *Cattleya*, may not have a sound root in the pot in which it is growing, and yet an inexperienced person would not for a time detect anything wrong by the appearance of the pseudo-bulbs or leaves, because the stored-up nutriment in the former keeps the plant going for a time without much assistance from the roots, and may perhaps produce a few flowers. *Masdevallias*, on the other hand, if once the roots get in a bad way, show the effect almost at once, as they have no pseudo-bulbs to sustain them, and are naturally more sensitive to atmospheric changes.

Harryana and *Veitchi* sections, and in fact for any cool house Orchid. The chief insect enemy to *Masdevallias* is the yellow thrip, and unless constant war is waged against these they soon get the upper hand, ruining the appearance of foliage and flowers. *M. amabilis*, *M. Harryana*, *M. Chelsoni*, *M. Veitchi*, *M. ignea*, *M. coccinea*, and *M. Lindeni* will be found a good selection of the showy flowered types. These are natives of Peru and New Granada except *Chelsoni*, which is a hybrid raised by Messrs. Veitch & Sons from *M. Veitchi* and *M. amabilis*. *M. tovarensis* is the only well known white flowering kind, and was recently described in the *Journal of Horticulture*.

M. Chimæra, *M. Backhouseana*, *M. Bella*, and *M. Wallisi* are amongst the most marvellous productions of the whole Orchid family, and I hope to refer to the culture of these more fully in the near future. Of the small flowered section *M. triaristella* and *M. triangularis*, as well as those named above, are free flowering, elegant, and very interesting species.—H. R. R.



WEATHER IN LONDON.—Severe wintry weather still prevails in the Metropolis, though there have been no further falls of snow during the past week. This morning (Wednesday) the thermometer in the southern suburbs registered 16° of frost. On Saturday last a thick fog hung over the Metropolis, and at time of going to press a raw, dull atmosphere prevails.

— **WEATHER IN THE NORTH.**—Intensely severe weather has marked the past week. On the 5th inst. another snowstorm raged furiously along the east coast, and blocked the northern railway lines for the third time. The frost of 6° on that day increased to 27° on the 10th, 26° and 22° being recorded on Monday and Tuesday mornings, but from various parts of the country readings below zero are reported. The days have been brilliantly clear and bright, and no change was indicated on Tuesday.—B. D., *S. Perthshire*.

— **EXTRAORDINARY FROST.**—Mr. David Thomson sends us from Drumlanrig the following readings from a meteorological society's thermometer in a sparred box 4 feet from the ground:—

February	8th	..	..	..	..	8° below zero.
"	9th	..	..	..	..	9° "
"	10th	..	..	..	..	12° "
"	11th	..	..	..	..	4° "

At twelve o'clock at noon, with bright sun, the instrument registered 22° below freezing. Mr. Thomson states that the lowest previous reading was 5° below zero in 1860, and further observes he has never seen on four successive nights such low readings as those quoted, and doubts if such have occurred in the century. We have received many notes of the weather, but as we have to prepare for press sooner than usual this week they arrived too late for insertion. At Aldin Grange, Durham, Mr. W. A. Jenkins mentions 5° below zero as the lowest reading there on the morning of the 8th inst. Messrs. Fell & Co., Hexham, registered 2° below zero last Friday and Saturday. Mr. A. Bartley, Eshwood Hall Gardens, Durham, has registered 3°, 7°, and 8° below zero. Mr. Forbes mentions 2° and 3° below zero as low readings at Hawick; and Mr. A. Keith, gardener to Sir G. O. Trevelyan, 10° below zero at Wallington, Northumberland.

— **ENGLAND IN THE ANTIPODES.**—The suburbs of Christchurch, New Zealand, are English villages, the streets are English lanes, the paddocks English meadows, the parks and gardens are likewise English. The river that flows through the city is the Avon. It runs bright and clear, Willows overhanging the banks, and English trout glide up and down the stream. How green and beautiful are the English trees that grow there—Oaks, Elms, Larches and Beeches, Willows, Poplars, and Elders. The town is surrounded with rich meadows, divided by Briar and Hawthorn hedges, all adding their share to the truly English character of this far-off country.

— **ROYAL CALEDONIAN HORTICULTURAL SOCIETY AND THE LATE MR. WILLIAM THOMSON.**—Mr. Charles Stewart, W.S., 4, Albyn Place, Edinburgh, writes:—"At the last meeting of members of the above Society, held in Edinburgh, it was agreed that a fund should be instituted and the interest thereof applied in providing prizes in memory of the late Mr. William Thomson, Clovenfords, such prizes to take the form of medals and sums of money to be awarded for exhibits at various shows in the United Kingdom in the same manner as the Memorial prizes already in existence, and Mr. Thomson's family have expressed their approval of the proposal. To carry out this scheme it is proposed that a General Committee should be formed to collect subscriptions, and circulars are being sent out inviting gentlemen to join such Committee. When this Committee is formed the members will send out circulars and collect subscriptions from their various districts, but as no doubt there may be many who would be willing to subscribe and who may be overlooked by the Committee, or not known to them, and who can only be reached by public announcements in the Press, it has been suggested that the gardening papers should be asked to insert a paragraph relating to the proposed object. I have been appointed interim Secretary for the Committee, and shall be glad to receive subscriptions or intimations."

— **NATIONAL VEGETABLE SHOW.**—At a meeting at the Royal Aquarium on Tuesday last the following resolution was proposed by Mr. R. Dean, seconded by Mr. Cummins, "That as the prospect of holding a National Vegetable Show at the Royal Aquarium in September next is by no means of an assuring character, the holding of such an exhibition be postponed to another year."

— **CHINESE PLANTS.**—China has yet many charming ornamental plants in store for us, as was evident from an exhibition of dried specimens at the Linnæan Society on Thursday last by Mr. W. B. Hemsley, on behalf of the Director of Kew Gardens. A new *Jasminum* in the way of *J. nudiflorum*, but having flowers nearly three times as large, was much admired, and would certainly be a great acquisition to our gardens. It was collected in the western province of Yunnan by Mr. W. Hancock, but too early in the season to secure seed. A new species of *Brandisia* from the same region is a highly ornamental rambling shrub with crimson flowers, reminding one of the Mexican genus *Lamourouxia*, belonging to the same natural order—namely, the *Scrophulariaceæ*.

— **EUPHARIS BLOOMS FROZEN IN WATER.**—Many people are under the impression that if delicate flowers are exposed to the cold they will immediately perish. That such is not the case can be proved in the fact that recently a quantity of *Eucharis* blooms were gathered and placed in a shallow dish of water and placed on a fruit-room shelf. During the night a severe frost set in, and the next morning the flowers were frozen stiff in the water. No steps were taken to extricate them, nor were they touched in any way, but the dish was left until the water thawed slowly. The blooms were then taken out and used, apparently none the worse for their starving. It would be interesting to learn, by experiment, how long such flowers would remain fresh in a frozen condition.—G.

— **GLASGOW FRUIT TRADE.**—At the first annual soirée of the Glasgow and District Fruit Merchants' Association, held recently in the City Hall, the Chairman, Bailie James Ferguson, remarked that the fruit trade of the city has been one of tremendous growth. Not so many years ago the quantity of Grapes brought into the city consisted of some 500 barrels, which supplied the city and surrounding districts. Last year one broker sold alone 104,000 barrels. This growth in Grapes also applies to every other kind of fruit. The trade has grown to such an extent that the bulk of the business is conducted outside the bazaar altogether, and he thought the time had now come when the Council should increase the accommodation they required. As regards the brokers they were a smart class of men; but he considered that the conduct of the business was in many respects more favourable to them than to the merchants.

— **VANILLA PODS.**—In reply to Mr. J. Crispin, F.R.H.S., January 31st (page 92), I may say that the Vanilla pods of commerce—not the *V. aromatica* as long believed, but shown by the investigations of Morren and Schiede in Mexico to be those of *Vanilla planifolia*—are gathered as soon as they become yellow, and are carefully dried by exposure to the sun's rays until they are made warm, in which state they are wrapped in woollen cloths, to promote evaporation and absorb the vapours. By this process the Vanilla acquires a black hue, often silvered over with glistening white prisms. The slender pods, 8 to 12 inches in length, are seldom of good quality when grown in this country, and dried in the ordinary way by exposure to natural or artificial warmth, but when prepared in the manner described they are considered in some respects better than the commercial article.—G. A.

— **THE HORTICULTURAL CLUB.**—The twentieth anniversary of the Horticultural Club was held at the Hotel Windsor, Victoria Street, London, on the evening of Tuesday, the 12th inst. The chair was taken by Sir J. D. Llewelyn, Bart. There was present a very large proportion of members considering the inclement state of the weather. The table was beautifully decorated with flowers and fruit generously provided by Messrs. Harry Veitch, T. Francis Rivers, and George Paul. Some half a dozen toasts were given, including that of the Horticultural Society, and in the course of the evening kindly reference was made to the presence of the Rev. W. Wilks, now convalescent, and to the long and excellent services of the Rev. H. H. D'Ombrian, the Secretary of the Horticultural Club. The evening was most agreeably diversified by a musical programme executed by the Maidstone Quartette, under the direction of Mr. George Bunyard, and two delightful solos on the English concertina were performed by Mr. Harry Turner.

— FLORIDA'S CROP OF PINE APPLES last year is estimated to reach 50,000 crates, or fully 2,300,000 Pine Apples.

— MR. JOHN R. WARD, an old Kewite, who for the past twelve months has occupied the position of Superintendent of the Nagpur Botanic Gardens, India, died, we much regret to hear, quite recently.

— THE extensive and valuable BOTANICAL LIBRARY OF THE LATE PROF. N. PRINGSHEIM has been presented to the German Botanical Society, of which he was President, together with a sum of 25,000 marks for its maintenance.

— PHOSPHORUS IN APPLES.—Mr. G. Searles recommends the eating of Apples just previous to going to bed. Its use at such a period of the day is said to assist the digestive organs, absorb any excess of acid in the stomach, and insure calm sleep to the eater. The Apple he contends contains more phosphorus than any other fruit or vegetable, and, after the fruits of the Citrus family, it is the best natural disinfectant of the mouth.

— ROSES FROM AUSTRALIA.—A bunch of frozen Roses from the garden of the Editor of the New Zealand "Truth," St. Albans, Christchurch, has recently been an object of some interest at the Royal Aquarium. The bunch was of good size, and appeared to consist of blossoms of rose and red Bourbon varieties, mingled with which were blooms of Gloire de Dijon. The flowers had retained their colours in a very satisfactory manner, but of course soon fell to pieces after the block of ice in which they had been frozen thawed down to the edges of the petals.

— WAKEFIELD PAXTON SOCIETY.—At the meeting of this Society, held on Saturday, 2nd inst., there was scarcely so large an attendance as usual. Alderman Milnes presided, and Mr. J. G. Brown was in the vice-chair. The lecturer was Mr. Haigh of Sheffield, who has previously appeared in the same capacity before the Society, and who on this occasion dealt with "The Sporting Character of Flowers" in a very lucid and interesting manner. He spoke of the means that were adopted to obtain a superior form of plant, and pointed out that in the cultivation of plants we reversed the order of Nature, both the strong and the delicate being sacrificed to the weakly seedling. If we followed Nature, he said, we should have very few of our most chaste flowers. Mr. Haigh dealt also with cross-fertilisation and the variation of plant life, remarking that unless attended to plants would revert to their original type. The strongest would survive, but only in a degenerate form. A discussion followed, and at the close a vote of thanks was passed to the essayist.

— CHICKWEED AND RHEUMATISM.—I enclose slip on rheumatism, distributed for the public good by our octogenarian rector, Begonia raiser and gardener. He tells me of many cases that his remedy has cured. If you could find space for the same I expect there are many suffering gardening friends who would soon put it to the test. —G. BOLAS. [We find the space below.]

A CURE FOR RHEUMATISM WITHIN REACH OF ALL—I need not say how prevalent this ailment (RHEUMATISM) is, or how great is often the suffering from it—a ready and effectual cure for this ill, from which no one can claim to be always exempt, is a thing much to be desired. And having discovered such a remedy, or rather having led to the discovery of it, I wish to make it known as widely as possible. The remedy is very simple, and abounds almost everywhere where a garden is to be found; and I now proceed to name it and to describe the way in which it is to be prepared. Almost everyone knows the common weed called CHICKWEED. To prepare the remedy in question fill a bottle pretty closely with this plant, and then pour in spirits of wine sufficient to cover the whole. Cork the bottle, and let it stand any length of time. It will be ready for use in two or three days. To use the remedy, moisten the tips of your fingers with this tincture and gently rub it on the parts affected. Rheumatic pains will often take flight at the first application, as I have myself experienced more than once, and severe cases, whether recent or of long standing, will be effectually relieved by a few repeated applications—of this I have had abundant and satisfactory testimony. It will relieve also pains that often recur in old healed wounds upon change of weather, and the severe pains that many suffer from in hands with swollen joints, or chalk stones. Let no one despise this remedy because it is so common a thing, but if a sufferer, let him put it to the test, and I can assure him he will not be disappointed. Our commonest weeds, I doubt not, abound in valuable remedies, if we only knew how to discover them, not indeed by haphazard trial, but by scientific proving.—F. H. BRETT, *Carsington Rectory, Derbyshire.*

— DEATH OF MR. GEORGE TABER.—We much regret to hear that Mr. George Taber of Rivenhill, Essex, died on Saturday last at the age of 76. Mr. Taber was a Director of the well known seed firm of Cooper, Taber & Co., Limited. He was widely known in the trade, and highly respected.

— BEAUTIFUL CYCLAMENS.—Messrs. Sutton & Sons have sent us from Reading a sample of Cyclamens, and having regard to their size, form and variety of colours, these ranging from pure white to ruby crimson, we have seen no blooms to surpass and few to equal them. The accompanying stout marbled leaves are also ornamental and indicate superior cultivation.

— INK FOR ZINC LABELS.—Various kinds of ink are used for writing upon large labels. A continental contemporary says that here is one of the best:—"Dissolve one part of sulphate of copper and one part of chloride of calcium in thirty-six times their volume of pure water. Allow the writing to dry for two minutes, then wash with a good quantity of water, dry it, and wipe with a piece of cloth soaked in oil."

— THE "GREAT" CLASS AT WOLVERHAMPTON.—Our correspondent who favoured with the note on the Wolverhampton show (page 117, last week) was "quite shocked" when he saw it in print, but says he found consolation in the intelligence of his readers, who would be quick to perceive that the class is to consist of sixteen plants, not 116, as he wrote without his spectacles. He presumes also that London was under a fog, or his little accident would have been discovered in Fleet Street. The delicacy of the reference is appreciated.

— AFRICAN MAHOGANY.—Mahogany logs from the east coast of Africa have got as far west as Louisville, Kentucky, and an American contemporary says that it is much cheaper than the mahogany from Central America and Cuba. From these Mahogany forests in Africa it is said that 12,000,000 feet of lumber have already been cut and exported, and they promise to yield an immense revenue to the British and French colonists who have the territory. The wood has a tinge of pink in contrast with the somewhat reddish colour of the American variety, and some of the squared logs which have been imported are 2 by 3½ feet in size.

— EARLY CAULIFLOWERS.—We may well expect to learn when a thaw comes that great injury has been done to white Broccoli. It seems impossible that the plants can have successfully resisted the intensely severe frosts without great harm being done them. That fact renders it all the more imperative that sowings of the Snowball section of dwarf Cauliflowers should be made at once, especially where not previously done. I always made a first sowing of Snowball in January, but in a cold house. Where there is some warmth, growth is rapid, and it is surprising how soon plants can be had several inches in height, and strong enough to plant on a warm border early. Those hard pressed for heads because of the loss of Broccoli should try and grow some plants in 24-sized pots, or even plant a foot apart in a large frame. Heads so obtained would be of the greatest value. To get them early, however, sowings must be made immediately.—D.

— WEIGHTS AND MEASURES OF FRUITS.—In looking over the notes written, presumably by the late Mr. Collins, reference is made to Apples, "profit and loss." It affords me an opportunity of offering a few remarks respecting the present confusing system in different localities of weights and measures as applied to fruits and vegetables. Nothing seems to me more expedient than an Act of Parliament giving a scale of weights and measures to be used throughout the land. I must be pardoned if I am misleading in any of my quotations as applicable to Lincolnshire. There are 14 lbs. of Strawberries to the stone, 15 lbs. of Gooseberries, 16 lbs. of Currants, Cherries, and Plums; 16 lbs. of Apples to the peck, 18 lbs. of Pears, 20 lbs. of Potatoes; and in other vegetables sold there must be—Cucumbers thirteen to the dozen, bunches of Radishes thirteen, Cauliflowers thirteen, and Lettuces fourteen. Young plants of Cabbages, Cauliflowers, and Brussels Sprouts are sold at six scores to the hundred. In almost everything produced from the garden there is some excess above the actual number, weight, or measure, according to produce sold. It is impossible to put 20 lbs. of Potatoes into a peck basket, while a bushel of such in a corn measure of that size would weigh 56 lbs. without the vessel. An Act of Parliament showing a definite scale of weights and measures, to be used compulsorily throughout the country, would prove beneficial to those dealing in such articles, by putting to an end much of the confusion which now exists. I shall be very glad if any one of your readers will give their opinions on this important subject.—GEO. DYKE, *Stubton Hall Gardens.*

— **EUONYMUS JAPONICUS.**—Mr. Charles Leslie Melville has sent us from Messrs. Bush & Judd's Gardens at the Royal Marine Hotel, Ventnor, Isle of Wight, a fruiting spray of this plant, it being the first that has been received at this office. Mr. C. Orchard, Bembridge, writes:—"The *Euonymus japonicus* (green variety) is fruiting here in many places. It is much like the deciduous *Euonymus europæus*, but the berries are not quite so large."

— **ROYAL METEOROLOGICAL SOCIETY.**—At the ordinary meeting of the Society to be held at 25, Great George Street, Westminster, on Wednesday, the 20th inst., at 7.30 P.M., the following papers will be read:—"Report on the Phenological Observations for 1894," by Edward Mawley, F.R.Met.Soc.; "The Thunderstorm and Squall of January 23rd, 1895," by William Marriott, F.R.Met.Soc.; "On Some Gradual Weather Changes in Certain Months at Greenwich and Geneva," by Alexander B. MacDowall, M.A., F.R.Met.Soc.

— **WEATHER IN THE RIVIERA.**—The weather at the Riviera has not been so severe since 1865. The western part has suffered mostly, although the temperature is far below the average over the whole. At Cannes 3 inches of snow fell on January 6th, and was succeeded by severe frosts, 14° Fahr. having been registered. On the 28th from 10 to 12 inches of snow fell, and again in the early morning of February 1st from 6 to 8 inches. At the time of writing it was freezing hard, and every sign of its continuing. The Palms have been broken about by the weight of the snow, and everywhere great damage has been done.

— **WREATH MAKING.**—A simple and inexpensive wreath frame may be made with the young wood of Willows. Take two pieces about the thickness of the little finger, one for the inner circle, the other, and larger of the two, for the centre. Bend carefully and place about 2 inches apart, then with small twigs of Willow tie or weave together. When done the frame is substantial yet light. In arranging flowers I always lay the greater part of them in at once, leaving a few choice wired ones to fill up any vacant space. We must bear in mind that it is not the quantity of flowers so much as the taste and lightness in arranging that is so essential in wreath-making.—W. T.

— **THE GREAT YORK GALA.**—Thirty-seven years ago a few of the tradesmen and others of York met with a view of seeing whether a horticultural exhibition could be arranged for, and those present formed a guarantee fund, each to the extent of £10. Officers and committee were appointed, and the first exhibition in June of 1858 was held. The Society has gone on gradually progressing in influence, size, and funds, and a very large sum of money has during the thirty-seven years been handed to the York charities. The schedule for their next exhibition in June is a most liberal one, with fully £675 in money and medals and a silver cup. Excellent prizes are offered for stove and greenhouse plants and for groups. £10 as a first prize for a group of Carnation plants; £15 as first prize for a collection of Roses in pots. Prizes are offered for Orchids, including the "Veitch Memorial" medal and £5 for Orchids by amateurs. Great prizes, including the "Turner Memorial" silver cup and £5 for Pelargoniums. Splendid prizes are likewise offered for cut Roses and fruits.

— **TOMATOES IN FRUIT COLLECTIONS.**—It has been a disputed point for some time as to the admission of Tomatoes in fruit collections, and in large collections especially. I think it should be allowed, since the Tomato has been acknowledged as a fruit on the dessert table. The Shrewsbury Committee in their schedule for this year, in wording of this class for twenty-four varieties of fruit, say that three distinct varieties (or less) of Tomatoes, eight fruits of each, will be allowed, so this is plain enough. Mr. Mayne (page 115) refers to a case at the November show at Plymouth, where a local exhibitor had in his collection of six dishes of fruit, one of Tomatoes and one of Nuts. In such a case, and with no competitor against him, as was the case, I should have hesitated about giving him the first prize unless exceptional quality marked the whole. This object most societies have in view in offering prizes for six or eight varieties in the open class, so as to induce exhibitors to stage the higher class fruits obtainable at that season of the year, and the Nuts must have shown that the exhibitor was rather "hard up" unless they were very fine Cobs or Filberts. "A. D." (page 123) hits the nail by saying that, "In this matter committees who prepare schedules are generally most to blame, because conditions and requirements in competitions are so obscurely drawn." As to "C. K.'s" proposal of "appeal judges," it is a sort of nightmare dream. What man with any self-respect would act as a judge under such conditions?—W. D. [The Shrewsbury class might have been drawn better.]

— **DAPHNE INDICA.**—In far-off Australia this sweet-smelling shrub flourishes profusely, and in many parts of Victoria long stretches of hedgerows are composed of it. To dwellers in that country it is much appreciated, owing to the fact that there, as in many other tropical climes, the flowers have not the sweet fragrance they have in more genial countries. The hot north wind plays havoc with vegetation out there, causing the foliage to droop and wither in the same manner as frost does in England.

— **POST-CARDS FOR THE CONTINENT.**—M. Ernst Benary, Erfurt, requests us to state that—"Since people have been allowed in England to use post-cards of their own with an adhesive stamp affixed, large numbers of them furnished with a penny stamp have found their way over here. Now, if the words 'Post-card. The address only to be written on this side,' are printed on the address side, our post-office authorities will pass them, but if not, they are treated as insufficiently prepaid letters, and a fine of 3d. is inflicted. It is hardly necessary to say that this is a great annoyance and loss to firms who have a large correspondence with Great Britain."

— **IVY FOR WREATHS.**—Where Ivy is grown under certain conditions, especially when the soil is of a barren, stony nature, the leaves during the severe days of winter change colour to a rich reddish brown. In this state they are very useful for making up into wreaths and crosses, and if mixed with a little silver Holly look simple and very pretty without any addition of flowers. If used as a groundwork, or tastefully mixed to stand above the flowers, they also make a charming effect, as the pretty contrast between the rich red foliage and the flowers is very attractive. Many wreaths and crosses are made up of leaves alone at a trifling cost, and find ready sale in the markets.

— **HORDEUM JUBATUM.**—From a note in the "Botanical Gazette" we learn that the Fox-tail Grass or Squirrel-tail Grass, *Hordeum jubatum*, is a serious pest to stock in the Western States of America. The barbed awns break up into pieces, penetrate the gums especially near the teeth, producing swelling, and ultimately suppuration, of the gums, and ulceration of the jaw-bones and teeth, the latter being so loosened as to drop out. If the animal continues to eat hay containing this Grass, the disease progresses till the bony tissue of the jaws is disarranged, the ulcers extend to all parts of the jaw-bone, and it becomes distorted and enlarged. The marrow-filled interior is changed into great cavities filled with the broken awns. This condition may continue till the cavities extend entirely through the jaw, and the tightly packed awns protrude till they may be pulled out with forceps or fingers.

— **THE BOARD OF AGRICULTURE AND MARKET PRODUCE.**—The Board of Agriculture has met the farmers and the fruit growers more than halfway in a circular just issued on the subject of frauds in the marking of market produce. The British dealers in commodities of this sort have long complained that they are heavily handicapped by the absolute freedom of imposture in the mode of describing fruits and vegetables which dealers now enjoy. Honestly described, British goods are thus often thrust out of the market by the mere magic of a name which does not properly belong to the articles in competition with them. The Board now offers to institute prosecutions under the Merchandise Marks Act, 1894, for offences of this sort, and it has drawn up a set of regulations for this purpose with the concurrence of the Lord Chancellor. The Board has no doubt that frauds of the kind complained of, including those based on misrepresentations of the place of origin, may be dealt with under the Act. Agriculturists and others concerned in finding a remedy must, however, co-operate heartily with the authorities in furnishing all needful particulars, and for this reason the circular is to be widely disseminated throughout the country.

THE CHARLES COLLINS' FUND.

WE have pleasure in announcing the following subscriptions received during the past week towards this very deserving case:—

	£	s.	d.		£	s.	d.
Amount previously acknowledged	45	8	6	F. W. Burt (Mr. Reckitts' Gardener) & Assistants	0	10	0
E. Gilbert	1	1	0	James Friend	0	5	0
J. Udale	0	10	0	Wm. Dean (collected)	0	8	6
Ernest R. Smith	0	2	6	G. H....	0	2	6
A. J. Rowberry	0	2	6	W. G. Head...	1	0	0
Robt. Owen...	0	5	0	Geo. Fry	0	5	0
Clay & Sons	1	1	0	Osman & Co.	0	10	6
F. Reckitt Esq.	0	10	0				

ASPARAGUS.

ALTHOUGH so well known and so commonly cultivated it may not be amiss to direct attention to this most important esculent at this season of the year. I say this season of the year, because to anyone intending to plant new beds this is the time to make the necessary provision for the work. The Asparagus has been written on and discussed so frequently and so well in the past that to some it may appear presumption to enter on the consideration of the subject again at this time. However, I have a conviction that all has not yet been said in its favour that its value and importance as a useful and remunerative garden crop entitles it to.

No one will, I think, dispute the statement that of all vegetables grown this is as much, if not more sought after and appreciated when in season than any other, and I think it may also be stated with equal truth that in the midst of depression and ruinous prices for many crops of the garden this article is in the unique and happy position of always being in demand and always returning fairly remunerative prices.

It is acknowledged on all sides that our home growers of produce for sale, in consequence of the immense and increasing importation of fruit and flowers which are placed on our markets from abroad almost daily throughout the year, are at their wits' end to know what to grow at a profit. We have not been, and are not now, without advisers as to what to grow and what not to grow, and more particularly with reference to British hardy fruit, and I am hopeful that much good to horticulture and to the country will follow the recent discussion in the general and gardening Press, and more especially from the recent exhibitions and conferences held by the Royal Horticultural Society. But after all that has been done, doubts will still exist in the minds of many whether we shall ever be able to oust the foreigner from our hardy fruit market at home. But there should be no doubt whatever as to our power (if we care to use it) to render it unnecessary for him to share so largely in the Asparagus supply.

Better climate favours growers on the continent and handicaps us in the production of many fruits; but not so with Asparagus. Here we stand together on more equal terms, as our soil and climate are as suitable for the growth of this vegetable as any to be found abroad. How comes it, then, that the humiliating fact must be acknowledged that more Asparagus is imported, both forced and naturally grown, into this country than we grow ourselves?

Different people will be ready with different answers to this very important question. My impression of the cause, and which I respectfully submit, is to be found in the apathy and indifference of our growers, and also perhaps to the want of inspiration and organisation. Before giving a few details as to the mode of cultivating the plant adopted here, I may be allowed to point out one or two ways in which I think it would be possible to advantageously increase very considerably the growth of Asparagus. We hear on all sides of the desirability of supplying our rural population with allotment land for the cultivation of garden crops for home use, and also if possible for sale. Now, what a little gold mine a quarter of an acre, more or less, would be under Asparagus in a labourer's allotment properly tended and cared for; and this would follow very soon after it was discovered that the Asparagus bed vied with the cow, the pig, and even the orchard in the golden return it is capable of bringing to its owner.

Oh, but many will exclaim, Look at the cost of making an Asparagus bed, and look besides at the time we shall have to wait before we have any return for our labour and money! Just so. Look also, my friends, at the fact that when you buy a calf how long it is before you receive any milk and butter, or if you plant an orchard how long deferred your returns often are. The one may last you ten years or so and the other fifty, but the Asparagus bed will go on for ever for anything we know to the contrary if it is tended with care and intelligence. I know of one in Bakewell, Derbyshire, the property of the late Mr. William Greaves, which is known to be upwards of 100 years old, and when I saw it a few years ago it was in splendid condition.

As to the cost of forming Asparagus beds and the time it takes before returns are obtained, exaggerated and erroneous ideas are held by the inexperienced. No doubt the cost in the first instance is more than for an ordinary crop, but once let it be practically demonstrated to the workman that there is more money in his Asparagus bed than in anything else he can produce, depend on it that the little trouble and extra labour necessary to grow this esteemed vegetable will soon be overcome, and after all the extra expense is chiefly represented by labour, which the workman has in his own hands to provide. If this idea, which I hold to be quite practicable, could be carried out throughout the country among our rural population the increase in the supply of

Asparagus would be enormous, with a corresponding gain to our workmen and their families.

There is another aspect of this question on which I would briefly touch, and which, I think, will appeal with greater force to gardeners, and I cannot illustrate what I mean in a better way than by referring to the large increase which has taken place of late years in the number of small growers throughout the country who centre their energy and labour on the growth of specialities for market—some Roses, some Carnations; others Tomatoes, others Cucumbers, and so on, and who, I believe, are fairly prosperous. Now I trust that there is an equally promising field open in the future to the gardener who may decide on making Asparagus culture the chief object of his study and industry.

An industrious man with 4 or 5 acres under Asparagus, well cultivated, could make a most comfortable living for himself and his family, and that without heavy and laborious toil, for once the beds are formed the labour of cultivating and looking after them afterwards is light and agreeable work, and is such, indeed, that the wife and children, if they were so disposed, could easily perform. If in addition to the open beds he could afford to provide some heated frames in which the vegetable could be forced then the value of his business would be much increased, as he could be cutting from October to July, and in winter there is always a sale for Asparagus roots for forcing.

It may be argued that if grown or multiplied in the wholesale way proposed that the supply would soon exceed the demand. I do not think so. At present Asparagus is an article of luxury, and seldom, if ever, within the reach of the artisan and working population, but once let it be offered at a price within their reach, the demand would be so great that no supply could satisfy; and, moreover, the article being so portable, and not too perishable, I can see no reason why we should not turn exporters of this article instead of importers.

The plant flourishes best in deep rich loam of rather a heavy than a light texture, but it will succeed with good cultivation on any ordinary well-drained soil. Our beds here are 6 feet wide, with a path or an alley between of 2 feet. I endeavour to have the beds dug out (one spit deep only) in winter, so that all the garden refuse which is collected from day to day, such as Cabbage and Broccoli stalks, are carted and wheeled into the trenches. This forms an excellent basis to start the beds with, as it answers the double purpose of draining and keeping the soil aerated and warm for the first year, thus affording the exact conditions necessary for the successful growth of the young plants, and afterwards, when the vegetable matter is decayed, it affords nourishing food for the voracious roots of the fully grown plants.

The next step to take is to place a layer of manure of the best quality procurable (either horse or cow) 4 to 6 inches deep when trodden down, on the top of the refuse, and this will bring the surface of the bed on a level with the ground; on the manure should be placed from 5 to 6 inches of the soil from the alley, and this afterwards raked level and gently pressed down with the feet when in fairly dry condition; the rake should then be drawn over it again, and the surface made ready to receive the plants.

For forming permanent beds we plant four rows, 15 inches between the rows, and the same from plant to plant. The line is stretched down and the plants laid on the surface (not planted) by one man, and another follows with a barrowload of friable soil and leaf mould. A little of this is dropped on each plant, and another man follows, gently treading the soil over the roots, at the same time carefully avoiding touching the crowns. This operation finished, about 4 inches more soil from the alley is placed on the beds, gently trodden down, and levelled afterwards with the rake, then all that remains to be done at the time is to edge down the side of the beds and finish them in "a workmanlike manner."

For the first summer after planting we usually sow some Lettuce seed thinly broadcast over the beds, and from which we obtain most excellent samples; a crop of Beans or Cauliflower is also taken from the alleys the first year. I do not think any harm is done by this light cropping the first season, but of course after the first year no other crop is taken.

If the work, which should be carried out during the last week in March or the first week in April, has been carefully executed as directed, and if the plants used are healthy and strong, they will make good progress during the summer. In the autumn when the foliage dies down and is cut off, it should be noted whether any plants have died or refused to grow, and a stick placed wherever there may be a blank, so that it may be filled up the following spring. The next season the plants will make splendid progress, and the following year, that is two years after planting, and three years from seed, a small cutting of grass may be made. The next year, the third year after planting, the beds

will be in full bearing, and will remain so if they are well attended to and not cut too hard for any length of time.

The plant is impatient of too much moisture, and it will be noted that I have advised the bed to be a little elevated above the surrounding ground. The beds are benefited with a moderately light dressing of good short manure each winter, and when the spring comes round again the rough and spent part of it is drawn in the alley and dug in, at the same time a sprinkling of soil being thrown over the beds, and at a later date, about the middle of April, a dressing of chemical manure is recommended.—OWEN THOMAS, *The Royal Gardens*.

CONFUSION IN GARDENS.

CONFUSION reigns supreme in far too many gardens. In some instances the gardeners in charge are not allowed to make any alterations which might safely be regarded as improvements, in others they appear to be content with matters as they find them. Much of the confusion prevailing is largely due to the indiscriminate distribution of fruit trees and bushes. When these are dotted anywhere and everywhere there is no possibility of systematically



FIG. 22.—TOMATOES AND MUSHROOMS.

cropping the rest of the space with vegetables, nor is it possible to cultivate the ground properly. If the trees and bushes were arranged in straight lines with spaces of from 30 feet to 50 feet between them then an orderly appearance would be presented and much better provision made for growing good vegetables. It ought now to be a very well known fact that digging and cropping with vegetables close up to or even within several feet of the stems of trees is a great mistake. We want to find abundance of fibrous roots near the surface, as without these there is but little likelihood of the trees or bushes proving really profitable. Long naked roots, or such as strike downwards into a clayey subsoil, favour the production of rank fruitless top growth, whereas a good surface action means the formation of abundance of root fibres, which collect food of the right description for the production of short-jointed fruitful branches. This is an oft-told tale, but, judging from what I have seen going on, still unheeded by many men who ought to have long since realised the fact that they are so many muddlers.

It is very much the fashion to form fruit borders alongside the garden walks, only in this case Apples, Pears, and Plums are grown as low standards, pyramids, bushes, or horizontally trained cordons, bush fruits occupying the rest of the space. This plan has its good as well as bad sides. I like it for the simple reason that it affords the best opportunities for the owners and others interested in fruit culture observing closely and readily all that is going on, and does not altogether prevent vegetable culture being carried out in good style. It ought, however, to mean an inner path between the fruit borders and vegetable quarters, not only because such paths are actually wanted, but also, owing to what ought to be regarded as the necessity for keeping either a spade or deep digging forks well away from the trees and bushes. More often than not the ground is dug and cropped close up to the latter—a great mistake. A mixture of fruit trees and flowers is common enough and not wholly to be condemned, but when we meet with

instances of huge clumps of *Pyrethrum uliginosum*, herbaceous Sunflowers, *Harpaliums*, Japanese Anemones, and such like plants growing into horizontally trained Apples and Pears, then it is time to plead for the fruit trees. Either keep those great hungry rooted herbaceous plants well away from the fruit trees or root out the latter altogether.

Opinions may vary as to the best methods of arranging fruit trees and bushes, but all things considered it is doubtful if the plan of growing them all in one or more quarters is not the best in the end. If standards are grown, and it is these from which the heaviest crops may be expected when they have attained a productive state, then I would most certainly advocate keeping all together. When standards are dotted about garden ground they rarely have fair play. The attempt is nearly always made to crop with vegetables close up to the stems, and what chance have the roots under such conditions? They would be far more likely to do well if arranged market growers' fashion, that is to say in rows from 24 feet to 30 feet apart each way, the greater distances being given to the stronger growers. Between the lines of these may be planted bush or pyramid trees of Apples and Pears on dwarfing stocks, and between these again can be arranged bushes of Gooseberries, Currants, and single rows of Raspberries. Half-standard Plums could be planted midway between the lines of standards.

Thus arranged it is many years before the standards materially interfere with the usefulness of the rest of the trees and bushes, especially if timely shortening some of the more straggling branches to better placed back growths is resorted to. It will also be found that, thanks to the avoidance of deep digging, and the applications of manure to the surface, the top spit is largely occupied by roots, this rendering the work of shifting trees and bushes overshadowed by the standards to a more open position a comparatively safe and easy matter. When all are kept in quarters proper attention can be given for keeping both roots and branches in the best order for the object in view—a good supply of fruit.

The question has yet to be faced of the possibility of reducing the confusion existing in numerous gardens. If the trees and bushes

are not too old, or the varieties are not of a worthless character, they may be transplanted, but many are not worthy of retention, either in their present or new positions. The simplest plan is to clear one quarter at once of the garden of trees and bushes, reserving only the very best, and laying them in till they can be properly replanted. This admits of the cleared space being deeply dug or bastard-trenched, if need be, preparatory to forming into a regular fruit plot on the lines already laid down. In the spring, just as the buds are on the point of bursting, the lifted trees or bushes may be replanted with every likelihood of their doing well, and that, or November, is also a good time for planting the rest of the prepared ground with young trees and bushes.—W. IGGULDEN.

DEAR OLD JOURNAL.

MUCH have I to thank you and your able contributors for during the last twenty years, and I must confess to having a certain amount of bias whenever I take up a fresh number, for I always look at the end of each article before I read it to see the name or initials placed there; and those articles with such old-standing signs as W. Iggulden, W. Bardney, J. Wright, and other old Journal fogies, including "D., Deal"—though put last not least—stand well in my estimation. However, I wish to convey my thanks to all for the useful advice I have obtained from your pages. After following the advice of "W. I." in his excellent little work on the Tomato, and finding it good, I should like to suggest to our good Editor that he reprints "W. I.'s" article on "Dwarf Tomatoes," of January 14th, 1886, for it is as good to-day as when it was written.

This and other articles in the Journal from time to time have at last ended in an attack of Tomato disease. It may be called, if you like, the

"Tomato Growing Craze." But to be serious, I have to say that to thoroughly test the question of Tomato growing for profit, my employer has found the means to erect a large range of twelve houses specially for growing the crops, and we have some thousands of plants ready for planting.

So far so good. We are trusting to succeed; but now I want to give your able correspondents a nut to crack. What shall we grow from the end of October to the end of February in order to reap a profit from our Tomato houses? Chrysanthemums seem to be overdone, if I may take the following paragraph from a contemporary to be correct—viz., "The competition is now so severe that the ordinary price for blooms grown without thinning has at the holiday season (Christmas) dropped to about 2s. 6d. the dozen bunches, twelve blooms to a bunch. It is evident there is no golden harvest to be reaped from Chrysanthemum growing at the present time." Now, will some reader try to throw a ray of light across the path of a—PERPLEXED ONE?

P.S.—Arum Lilies, Freesias, Tuberoses, cool house Orchids, &c., dance



A WONDERFUL ROSE GARDEN.

WHEN in the neighbourhood of Bath, before the Flood—I mean the flood which submerged the lower parts of the city and valleys round about last autumn—I had the pleasure of calling on Mr. Alexander Hill Gray and inspecting his Rose garden. Surely this is the most wonderful garden of its kind in Britain, and it affords such evidence of its owner's devotion to his favourite Teas, and of his determination to provide generously for them and to deal liberally with them, that is not elsewhere to be found.

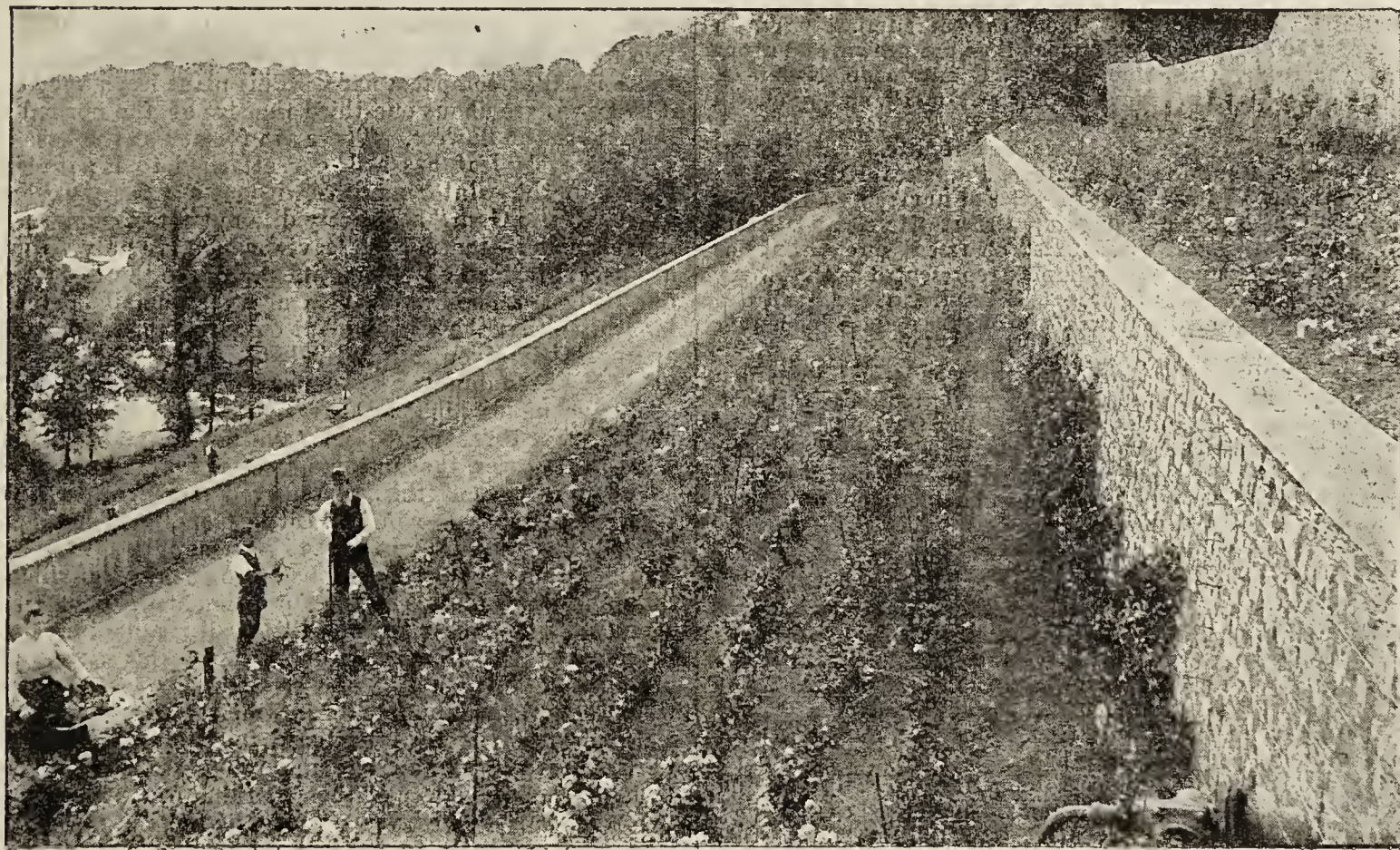


FIG. 23.—MR. HILL GRAY'S ROSE GARDEN.

before one's eyes; but I leave all these, and wait to see the verdict on what to use our Tomato houses for in winter with a view to profit.—P. O.

[We permit our racy correspondent to write under the heading of his choice, as we should not like to hurt his feelings. We shall be glad if readers will try their teeth in cracking the nut submitted, and to he who does so in the best manner and shows the most kernel we will give a handsome silver medal if in the opinions of independent examiners such an award is merited. The subject indicated is an important one, and those who think they can deal with it usefully had better in the first instance communicate with the Editor. In the meantime our "perplexed" correspondent will have the satisfaction of finding in the present issue something to read from every writer he mentions, and it may therefore be expected he will consider the issue a good one; and further, as his letter suggests that he has not read the last and best edition (the fourth) of his favourite author, we advise him and others in a similar position to procure a copy of "Up-to-date Directions" on the cultivation of the Tomato; and to show that the point advanced by our correspondent has not been overlooked we reproduce an illustration of a profitable combination—Tomatoes and Mushrooms in the same house (fig. 22). They need not, however, necessarily be both bearing together, but Tomatoes during the summer and Mushroom production throughout the winter, and if both yields are as abundant as they ought to be, and may be, both crops are profitable. We may add that no one on the office staff of any gardening journal will be eligible to receive the offered medal, but all outside contributors and non-contributors to our columns are free to do so, and we shall be ready with his sanction to publish the portrait of the winner. Mr. Iggulden's "Up-to-date" *Tomato Manual* can be had post free from our office for 1s. 2d.]

Beaulieu, Mr. Gray's residence, is situated a mile or two from Bath, on the Weston Road, from which we look down on the chimney tops of the residence, and before entrance can be had to the great traveller's sanctum, ornated with the spoils of the chase in India and Africa, we have to descend some forty or fifty steps; then when we go out again to see the Roses have to descend many more, and before we see all we have to go down and still down, and then we are perhaps a hundred feet, and perhaps more, above the far-stretching meads, with the river meandering through them, bounded by distant tree-clad hills. It is a delightful outlook, placid in character and suggestive of repose. It will be perceived that the home of the great rosarian is half way up a steep hillside. The house and the prospect pleased him, and therefore he purchased the property, determining to make it suit the Roses he intended to grow. The task must have been herculean, and it may be presumed the greater the difficulties the greater the zest to overcome them.

Fancy a rugged and in places almost precipitous slope some half a mile long, or it may be more, with rocks jutting out and little soil among them, and an idea may be formed of the position in the concrete. See it now, or in the summer, when between 7000 and 8000 Teas are in bloom; note the three far-stretching terrace gardens of Roses, and the long, strong supporting walls, and you can but marvel at what has been accomplished. Every man able and willing to work at stone-digging and levelling down was set on there, till a small army collected, working all day long month after month, and one would think year after year, till the whole great undertaking was completed. Many thousands of loads of soil must have been brought for mixing with the thousand loads of manure for filling these huge beds some 3 feet deep. In forming these terrace gardens for his Roses and building the walls Mr. Hill Gray built himself a monument of an enduring character, for

all the king's soldiers and all the king's men could not build up the ancient precipice again.

And what is the return for all the labour and wealth invested in the work that has been accomplished? Roses, Tea Roses, nothing more, and nothing more is wanted, for these give the owner happiness. They are his delight, and his pleasure is to attend to their wants and make friends happy with baskets of blooms. See how the plants are cared for. Summer shoots tied out each to its separate stake, lest they should brush against each other and injure their precious leaves; half a dozen men walking abreast moving the soil, searching for suckers and a stray weed, lest it should abstract a trifle of the abounding food that has been provided for the Roses. Of the blooms their owner is entitled to the best, and grand are many of them. Now and then he takes same to the shows, bringing home his share of the prizes, but his labour of love is not directed to showing alone, but mainly for home pleasure, and it must be a pleasure for him to feel that his son, his only son, inherits the parental love for Roses and flowers generally, enjoying himself in raising many. Both of them, father and son, were preparing for a journey to the Azores on a hunting tour—for Rose seed, and whatever they could find to bring home to Beaulieu in the spring. Some seedling Roses have been raised of wonderfully rampant growth against walls, and one of these is, I think, being distributed by Mr. George Paul.

Of the varieties grown by Mr. Gray, Maréchal Niel is the first favourite, and he cuts magnificent blooms from admirably grown standards. About 500 plants of this famous Rose are grown, and about 400 each of The Bride, Catherine Mermet, Comtesse de Nadaillac, and Souvenir d'Elise Vardon. Next in order of merit, and grown in lesser number accordingly, are Innocente Pirola, Edith Gifford, Madame Cusin, Anna Ollivier, and Marie Van Houtte. Then follow Souvenir d'un Ami, Souvenir de S. A. Prince, Francisca Krüger, Alba Rosea, and Princess of Wales. Next in order of numbers at Beaulieu are Caroline Kuster, Madame Lambard, Ernest Metz, and Ethel Brownlow. Cleopatra comes within the charmed circle, but as being comparatively new is not yet so largely represented as the others. Mr. Hill Gray, however, regards Maréchal Niel as the queen of Roses, and may he not be regarded as the king of Teas among amateur growers?

Mr. Foster-Melliar gives a view of part of this wonderful Rose garden in his beautiful book which has been previously referred to, and I have the permission of Messrs. Macmillan to use the illustration (fig. 23), in which the master is seen standing among his plants, evidently discussing the merits of the blooms he has cut and handed to his assistant for the tray held by a servitor, women as well as men having to help "among the Roses" at Beaulieu.—J. WRIGHT.

WORKSOP ROSE AND HORTICULTURAL SOCIETY.

THE annual general meeting of this Society was held at the Lion Hotel, Worksop, on Friday last, the 8th inst., Mr. H. V. Machin in the chair. In spite of the bad weather some of the members of this Society came several miles over the snow (some on foot) to attend. Amongst others present were Messrs. J. S. Whall (Treasurer), George Baxter (Hon. Secretary), A. Baxter (Assistant Hon. Secretary), C. Slade (head gardener to Duke of Newcastle at Clumber), S. A. Woods from Osberton, and F. E. Chambers (Gateford), John Dougall, F. Sissons, and others. The following officers were unanimously elected:—Patrons, His Grace the Duke of Portland, His Grace the Duke of Newcastle; President, Mr. H. V. Machin; Vice-President, Mr. J. S. Whall; and an active and influential Committee, composed of twenty-five members, was elected; Hon. Treasurer, Mr. J. S. Whall; Hon. Secretary, Mr. George Bailey (subject to his consent to act).

The much-esteemed late Hon. Secretary of this Society (Mr. George Baxter) finds himself unable to undertake the hon. secretaryship for 1895 owing to the increased demand on his time from other sources. He will, however, act in his old capacity until a new Hon. Secretary comes into office. It is hoped that Mr. Bailey, who is very highly thought of in Worksop, will succeed Mr. Baxter, who was heartily thanked for his past services. Mr. Baxter has for a long time been connected with horticultural shows at Worksop. He was Hon. Secretary of the old Worksop Horticultural Society, which was broken up some eighteen years ago. The present President, who may justly be called the founder of the new Rose and Horticultural Society, which came into existence in 1889, is eldest surviving son of the late Mr. J. V. Machin of Gateford Hill, who in his turn was President of the original Society for upwards of twenty years. The next Rose and Horticultural show will be held on Thursday, 11th July.

WHITE AND YELLOW RICHARDIAS.

AMONGST the crazes that have been ventilated of late years has been that of giving English instead of botanical names to plants, such, for instance, as when we are told that a *Tiarella* should be called Foam Flower, a practice which, it is hoped, will never be popular, and which in the instance of the *Richardias* is singularly incorrect. This is sometimes called the White Arum, and at other times the Lily of the Nile, but in truth the plant is a native of South Africa, and does not occur within a thousand miles of the Nile. It has been more than 200 years in our gardens, and is often the ornament of a cottager's window as well as a gentleman's con-

servatory, but never during its history has it been so largely cultivated as at the present time; the demand for cut flowers, which has so greatly increased of late, and the custom of placing wreaths on the graves of departed friends, have both largely influenced this culture.

Tens of thousands of plants are now grown near the Metropolis and in various parts of the country for supplying this demand, and the facility with which the plant increases by offsets has greatly assisted in this matter; in fact, it is one of the easiest plants in cultivation where a cool greenhouse can be relied on. It is essentially a water-loving plant. The plan which I have found succeed best with it is, after it has flowered, and all fear of frost is over, to take the plants out of the pots and plant them in a cool, moist part of the garden. Here they may remain during the summer, and then in September they may be lifted and repotted, brought into the greenhouse, liberally supplied with water, and kept clear of aphids, which are very fond of getting into the spathes, and if they do nothing worse disfigure the purity of the flower. I do not think it is at all particular as to soil, but a good retentive loam seems to suit it best.

During the past few years considerable interest has been excited by the appearance of dwarf forms, and also of bright yellow flowered varieties. With regard to the former there seem to be two forms at least, very different indeed from each other; one of these is called *compacta nana*. This plant has a very curious habit. The leaves are about one-third the size of the normal form, and so indeed are the flowers. These are formed at the base of each leaf, so that every leaf has a flower attached to it; it also comes into bloom in the winter months without any forcing whatever. The other "Little Gem" is entirely different in character; its foliage is much smaller—indeed, the leaves, which are only a few inches long, are flaccid instead of being stiff, more like the Lords and Ladies of our hedges. The flowers also are very small, about 3 inches in length, so that the whole plant deserves the name which has been appropriately given to it, "Little Gem."

It has been doubted by some whether it will retain its miniature character under higher cultivation. All I can say is I have now grown it for three years, and have not found it alter in the least. I know, however, that in some cases the previous variety has been supplied instead of this. I received last year two plants from a well-known nurseryman as "Little Gem," which turned out to be "*compacta nana*;" they had been supplied to him under the former name, and as such he had grown and distributed them. I have no idea as to how this plant originated, but it is so unlike the type that I have heard some people call it a distinct species.

Perhaps the greatest interest which this flower has aroused has been the introduction of two beautiful yellow flowering forms which have been exhibited during the past two years, *R. Elliottiana* and *R. Pentlandi*, one introduced by Capt. Elliott of Farnborough Park, Hampshire, and the other by Mr. R. Whyte, Pentland House, Lee; the latter of these, I think, the more beautiful of the two. I happened last year to meet at the Hotel Windsor a gentleman who evidently took some interest in flowers, and who told me that he was home from the Transvaal. This led me of course to inquire about the yellow *Richardia*, which I had just seen at the Drill Hall. I asked him whether he had seen this flower. "Oh, yes!" was his reply, and then he told me that in the Cape Territory he had seen whole gullies and ravines full of the white variety in flower, and that it is a most beautiful sight; while in the Orange Free States there was a variety with yellowish flowers, which gave place in the Transvaal to the fine yellow varieties named. On leaving he gave me his card, and I found that he was a Mr. Montague White, but I did not think of asking him whether he was related to the introducer of *Pentlandi*. He told me that he had brought home some bulbs of it, and that they could be had in any number in their native habitat.

Both of these are peculiar in their habit, being deciduous; they form tubers something like a *Caladium*, and as all the small pieces of tuber will grow it is likely that they will soon be widely distributed. The nurseryman from whom I obtained my plant seems inclined to think that it will not be so easy of cultivation as some imagine, and I think it is just possible that it may require more heat than the ordinary varieties. He said that he was going to shake out his early in the year, take off the small tubers, and repot the plants. As during the winter months it is at rest it will require only a little water, but must not be allowed to become perfectly dry. I am treating my plant in the same way, and shall look forward with some anxiety to the result.

There are, I believe, other varieties or species in cultivation, but as far as I am aware they are not of great horticultural interest, while those that I have enumerated above are, I think, the general favourites. I should add that the yellow of these two varieties is not a washy but a brilliant colour, and a number of them will probably be seen in the coming season.—D., Deal.



FERTILISATION OF THE CHRYSANTHEMUM.

ALLOW me a few lines to say that your correspondent, Mr. Chas. E. Shea, in his criticism of the report of the Scientific Committee of the Royal Horticultural Society, pages 78 and 79 of your Journal, has missed the point. As to whether the Chrysanthemum is protandrous was not in question, but whether the Chrysanthemum is by Nature self-fertilised or cross-fertilised. My experience is that the Chrysanthemum is self-fertilised by Nature, and this the Scientific Committee have confirmed. I hope on the first opportunity that arises to practically illustrate the experiments to which I resorted that warranted my arriving at that conclusion.—HENRY BRISCOE-IRONSIDE.

A PLEA FOR ANEMONE-FLOWERED CHRYSANTHEMUMS.

IN answer to "H. Harris" (page 120) I may tell him I was not at the Crystal Palace show, and that the admiring crowd of ladies round the stands of Anemones does not alter in the least what I wrote respecting the Anemone as a decorative flower. I gave my experience and the experience of other gardeners with whom I have discussed the subject. The Anemone and Japanese Anemone will always find a place and a host of admirers at our autumn shows, and justly so, and amongst them will certainly be—F. G.

NEW CHRYSANTHEMUMS.

HAVING taken a deep interest in the election, I should like to see the names of the electors who placed their favourites in high position. The variety at the head of the poll I have no doubt is good, but what opportunity has the general cultivator had of testing it? It may be a sturdy grower, or it may be a weak grower. The same may be said of eighteen or twenty others. No variety should be elected unless it has been thoroughly tested by the general cultivator one year. Mrs. E. S. Trafford (fourteen votes) is a sport from William Tricker (seven votes), and placed with the decorative varieties. This is a strange position for the poor parent. In the election for thirty-six Japanese poor Tricker only gets one solitary vote, and Hairy Wonder the same; in the new varieties it has thirteen votes. Mrs. R. C. Kingston is placed among the new Japanese with one vote. This variety is not yet in commerce; besides, it is a Chinese incurved, and should not be placed in the list. There are several others with votes not placed in commerce, and some of them, I think, never will be. Again, there are varieties two or three years in commerce. J. P. Kendall, I think, is four years old, taken out of commerce by the raiser, and now brought forward as a new variety. Verily, the election has brought out strange results, and some of the electors appear to have curious notions.—SPECTATOR.

CHRYSANTHEMUM L. CANNING.

SEVERAL varieties of Chrysanthemums have been recommended for producing white flowers for the festive season, but this year I have been fully convinced that the best of all is L. Canning. Calling on a florist on December 15th I saw such a sight that I had never seen before—viz., over 1000 plants of this variety developing their charming blooms. The majority had been disbudded, and each plant carried an average of ten blooms, of large size and of snowy whiteness. The plants were about 3 feet high, and clothed with foliage to the pots. They were very clean, pictures of health, and as arranged on each side of the paths of four long span-roofed houses, they looked like beds of snow. Cutting had just commenced, and the demand for flowers kept the packers busy, and the stock was soon cleared off at a good price.

L. Canning has been grown for three seasons in the establishment with equally good results. Before that time Pelican, Miss Marchaux, and Mrs. H. Cannell were found useful, but now only a few of these are grown by way of comparison, and the superiority of the favourite is at once apparent. The shape, build, and purity of the flower is just what is wanted in the market. Another point in its favour is its freedom in producing cuttings, so much so, that already over 10,000 cuttings have been disposed of from these plants, and still they come, so do orders for them, and by the time these lines are printed thousands more of the cuttings will be sent away.

I see that Mr. O. Thomas of Windsor obtained an award of merit for L. Canning at the Royal Horticultural Society's meeting on January 15th, so probably its merits will soon be appreciated. My advice to all who desire white Chrysanthemums later in the season is to try this useful variety.—H. HARRIS, *Denne Gardens, Horsham*.

LOOKING AHEAD.

IN Chrysanthemum culture, as with everything else nowadays, the successful growers and exhibitors are those who look some distance ahead in the matter of cultural details. Now is the period when many arrangements for the future development of the plants and blooms should be made, and one of the most important is the final selection of

varieties and the number of each to be grown for the present year's requirements.

I think it is the accepted method of all cultivators to insert many more cuttings than are really required for final growth, and then to make a selection of the most promising plants. Although I am now alluding mainly to plants cultivated for large blooms for exhibition and home use, it is necessary to use the same discretion when dealing with plants grown for decoration only. It is a mistake to give space to varieties of indifferent merit, or to those that are difficult of cultivation. In the case of exhibition blooms, cultivators would do well to include all those possessing high merit combined with peculiarities of constitution, because in competition such points weigh heavily with qualified judges. Not only are these of considerable importance in the matter of prizewinning, but the fact of one cultivator being able to produce blooms of varieties that others fail with, stamps the former as possessing superior knowledge of the details required. With the vast array of names embraced in nearly all Chrysanthemum catalogues there can be no reasonable excuse for the inclusion of inferior varieties. I would impress on all, especially those who have had but a limited experience, the necessity of rigidly excluding all doubtful varieties, bearing in mind that variety may have charms but not always use. It is also a mistake to overcrowd the number of plants. All are more or less spoilt for want of the desirable space. Far better grow 100 really well than spoil double that number.

The bulk of the early rooted plants are now well furnished with roots and awaiting their first transfer, and this affords a good opportunity to make the final selection, rejecting those that exhibit the slightest sign of weakly growth, premature bud formation, insect pests, mildew, or other parasites, in favour of those free from the ills named. A stocky habit of growth ought to be encouraged; a good foundation is most desirable, and abundant space is the chief necessity for obtaining these. As long as the leaves of one plant do not overlap those of its neighbour no complaint in this direction can be made. Directly the plants are a few inches high and the weather favourable the best position is in cold frames or pits, choosing a position where any advantage from the sun is gained, sheltered also from north and east winds. The glass must be well cleaned, and the frame made watertight. A thick bed of coal ashes should be provided, as too much moisture at the roots is certain to create a paleness in the colour of the leaves.

Some thought must shortly be paid to the manner in which the bush or purely decorative plants are to be trained. Many persons prefer the continual topping of the plants as fast as 2 or 3 inches of growth are made with a view to obtaining large plants. No doubt that aim is readily accomplished, but I venture to assert that plants grown under the method I will name will be much more satisfactory. The larger plants will occupy more space, but not give better results. Plants of this kind produce blooms with weak peduncles and generally short stems, therefore are not nearly so useful for the decoration of vases. Top the plants twice—once when 4 inches high and again when 5 more inches of growth has been made, afterwards allowing them to grow uninterruptedly. From such plants spikes of bloom from 1 to 2 feet can be obtained, and which, furnished with numerous side shoots, will be distinctly useful and meritorious.

After writing so much and so long in favour of the extension of single flowering varieties, it is pleasing to me to note there is a greater tendency to favour this section. Cultivators have come to realise the value of these flowers for decorative purposes. At the time I write, February 8th, I have just been enabled to cut charming blooms of this type, and which are distinctly useful at this season of the year. No complaint can now be fairly lodged against the want of colour or variety in single flowering Chrysanthemums; most brilliant in colouring are many now obtainable. For instance, *Souvenir de Londres* and *Mdme. Le Mouet*. Then we have almost all neutral shades of colouring, and what is more, the blooms possess a fragrance not obtainable in any other section.

Cultivators, I find, appreciate much more than formerly the early flowering type of Japanese for outdoor growth. For providing a display of cut bloom in September and October before the regular indoor Chrysanthemum season commences, I can strongly recommend the early flowering race of Japanese varieties, like *Ryecroft Glory* and *Comte Fouchier de Caria*, the former yellow with a slight trace of bronze, and the latter distinctly bronze. Specimen trained plants, such as pyramids, standards, and those of convex form must have unstinted attention to space, cleansing from insect pests, and otherwise encouraging a free and vigorous growth.

The preparation of the compost for potting the plants, no matter for what purpose they are grown, must receive early attention. Where the necessity arises of employing chemical manures the preparation of the soil is too long deferred. It is useless to mix the compost on the same day it is required, with the idea of obtaining full benefit from the manures thus employed. All phosphatic manures—such as bones, horn, and hoofs—require a longer period for assimilation of their virtues by the soil before the plants derive benefit. Basic slag is much thought of by some cultivators for Chrysanthemums, and should be mixed with the loam for at least a couple of months before required. In preparing the compost for the final potting, and this is the most important, the loam, which is the chief ingredient, should be stacked with layers of manure between, so that the whole will be thoroughly incorporated when used at potting time.

Stakes of various sizes, posts and rails for making the framework to

which the plants that are cultivated for the production of cut blooms are made secure, should be prepared, so that when the time comes for their use no trouble will be experienced or delay occur. Pots of all sizes requisite for the various phases of culture ought to be clean if already in stock, and all other minor details facilitated, and then will be the advantage proved of "looking ahead."—E. MOLYNEUX.

MR. CHARLES E. SHEA.

FROM time to time portraits of men of mark in the horticultural world, and of those who have achieved success in some particular department, have appeared in our columns. We have now pleasure in giving an excellent photographic representation of the gentleman under notice, whose name is so familiar to readers of garden literature. Mr. Shea may be fairly described as both a scientific and practical horticulturist. His article on the fertilisation of Chrysanthemums (page 121, last week), shows that in raising new varieties of these flowers he does not resort to easy, haphazard or empirical methods, but follows strictly scientific lines as suggested by botanical knowledge, and to this may be attributed his quickly won success, but we only regard this as a beginning of greater triumphs to follow. He has good reason to persevere in the work in which he has proved himself an adept, and we shall be both surprised and disappointed if he does not share largely in placing England on a level with France or any other nation in the raising of new and meritorious Chrysanthemums.

Mr. Shea, as is well known, was a successful exhibitor of Chrysanthemums during some four or five years, and though he limited his culture to

350 plants, met the best growers in open classes and won many prizes at the shows of the N.C.S. at the Crystal Palace and the Kent County exhibitions, and it will be remembered that in 1891 he succeeded in securing first prizes in the forty-eight Japanese classes at the National and "cighteen Japs" at the Palace. After this Mr. Shea appears to have become tired of the monotony of exhibiting, and turned his attention to the raising of new forms, guided into being by his own judgment in the selection of varieties for manipulation in the production of ideals that he has in view, and of which he seeks the realisation. He has thus entered the domain of infinite variety and practically inexhaustible.

We believe that of his first batch of seedlings he saved thirty-six

(from the foliage mainly) and threw the rest away. The best of these thirty-six were Miss Dorothea Shea and Silver King. Next year he kept thirty-six more, and sent out Miss Maggie Blenkiron and Miss Sylvia Shea, the latter rather a weak variety and difficult, it seems, to grow. The late audit shows the position of these. Of the 1894 seedlings the best so far is Mrs. C. E. Shea. Miss Rita Schroeter obtained a F.C.C. from the F.C. of the N.C.S., and Miss Dulcie Schroeter an award of merit at the Drill Hall last November. Miss Elsie Teichmann and Miss Bronna Foster are also 1894 seedlings, but have not yet been submitted to the Committee, and there are still more yet unproved. Mr. Shea, it is hoped, will continue in this work, though he does not pretend to give

it his whole thought, devoting attention also to Roses, herbaceous plants and fruit culture; but will he be satisfied with cultivating, even in these departments? We suspect not; but sooner or later he will be tempted to see what can be accomplished by the art of pollination, which has already given him such encouraging results.

Then he has other calls on his time, and is always ready to help where he can possibly do so. His ability as a chairman was fully recognised at the recent annual meeting of the National Rose Society, and he was admittedly of assistance there. He is chairman of, to coin a term, the court of judges now trying to reduce order out of chaos. His legal training (though he has retired from practice) fits him admirably for sifting the wheat from the chaff, and he is helpful there. Mr. Shea also occupies a seat at the Council table of the Royal Horticultural Society, and he must be admirably qualified for such a distinguished position. For these reasons we are glad to have the opportunity of adorning our pages with the

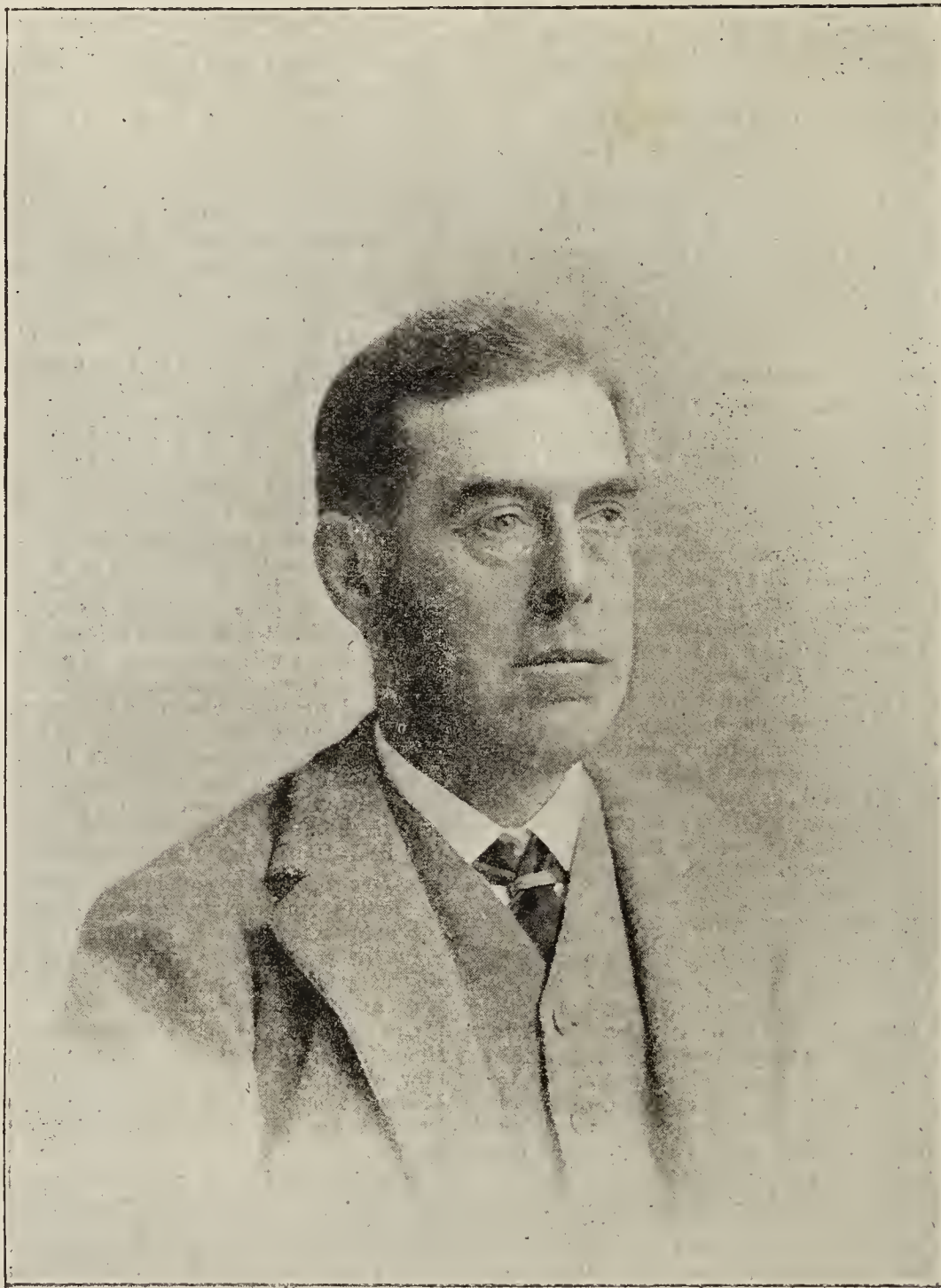


FIG. 24.—MR. C. E. SHEA.

portrait of a gentleman who works so willingly and well in the advancement of horticulture.

IMPRESSIONS OF EATON.

EATON HALL, the magnificent home of the Duke of Westminster, is so well known in the gardening world that it is scarcely necessary to explain its whereabouts. After a long railway journey in the early morning I arrived at the quaint old city of Chester. Gladly would I have lingered for a few hours and examined more closely its old-fashioned houses with their timber-studded gables of the Elizabethan period, or wandered round the crumbling remnants of the old city wall. Stern duty, however, forbade this, and a rapid drive through pleasant

country scenery brought me to the park entrance, through which a long sweep of carriage drive led between an avenue of giant Oaks and Elms to the main entrance of the mansion itself.

On arriving at the gardens I was welcomed by the genial and

coupled with an ardent love for his garden on the part of his employer, the whole place has been completely renovated since he (Mr. Barnes) took charge of it three years ago. Old houses have been swept away and replaced by imposing looking structures, the whole being heated by



FIG. 25.—THE CORRIDOR AT EATON. (From a Photograph by Mr. G. Walmough Webster, Chester.)

accomplished head of this department, Mr. Barnes, who at once proceeded to bring before my notice all the interesting points connected with his responsible charge. Eaton Hall is one of those establishments where everything is done well, and gardening is carried on to a high state of excellence. Owing to the great energy of Mr. Barnes,

seven new Trentham boilers, and in fact everything, so far as the buildings are concerned, put into the best possible order.

The houses are grouped in a compact area surrounded by a high brick wall, the enclosed space being again intersected by walls, against which are erected the vineries and Peach houses, and all built on

modern principles. Most of the Vine borders are on the outside only. Mr. Barnes, however, is gradually introducing inside borders, and since his taking charge has made seven new ones, his principle being shallow borders on a firm concrete bottom. The remaining walls are covered mainly with Pears and Plums, from which during the past season good crops have been gathered, though the Apples, as in many other places, were a failure.

A range of lean-to fruit houses occupy a south wall, the first planted entirely with Coe's Golden Drop and other Plums, followed by cool Peach houses, in which Barrington and Sea Eagle Peach and Lord Napier Nectarine predominate. Following these is a range of late vineries, four in number, the first planted with Lady Downe's and Alicante, followed by Muscats; the third with young canes of Lady Downe's planted last spring, and fourth with Black Hamburgs. We next glance through a succession of pits containing winter crops of Cucumbers and Tomatoes, to be followed by supplies of Melons and additional crops of the above for summer use.

The Orchid houses are substantially built of teak wood. Like everything else at Eaton, Orchids are well grown, and consist of fine collections of Cattleyas, Cypripediums, Odontoglossums, Coelogynes, and Dendrobiums. As the different species come into flower they are effectively staged in one large exhibition house, now particularly gay. Conspicuous amongst others are some fine pieces of Dendrobium Wardianum and Lælia Sanderiana and L. anceps. Angraecum sesquipedale, too, is quite at home here, there being several fine specimens producing twelve and fourteen blooms each. A superb collection of Calanthes gives evidence that their cultivation is thoroughly understood, the chief varieties being Veitchi, lutea, and vestita rubra.

Another range of lean-to houses contains Figs, which are extensively grown at Eaton, and Vines, mainly Black Hamburg, Lady Downe's, Muscat of Alexandria, and Madresfield Court; early vineries just now showing fruit, and Peaches in bloom, claim special attention.

Perhaps the chief feature of interest at Eaton is the handsome corridor. It is a structure about 150 yards long, 15 feet wide, with a height of about 20 feet. The roof is covered from one end to the other with creepers of many kinds, which by their trailing habits give the whole an elegant appearance. As there is no conservatory attached to the mansion the corridor takes its place, and is at all seasons kept gay with flowers, chiefly with Fuchsias and Campanulas during the summer months and with Chrysanthemums in the autumn and winter. It is now adorned from end to end with Arum Lilies and Liliun Harrisii, intermingled with elegant Ferns and foliage plants, the effect of which can be easily imagined from the illustration (fig. 25), which is reproduced from a photograph taken by Mr. G. Watmough Webster, Chester. The view, looking from one end to the other, can scarcely be surpassed, as it is a long continuation of floral beauty. For the furnishing of this, it is needless to say, a large number of plants are required, and for this purpose alone 1600 bulbs of Liliun Harrisii are potted annually.

Leading from the corridor are a series of houses, conspicuous amongst which is the spring house tastefully adorned with forced plants, such as Hyacinths, Lily of the Valley, Deutzia gracilis, Lilac, and Freesias, and another staged with well bloomed plants of Cyclamen persicum. In addition to these there are several, containing Palms, Azaleas, Camellias, and Imantophyllums. A splendid collection of Carnations, of which Mr. Barnes may feel justly proud, must be passed with but a cursory glance. Malmaisons are strongly in evidence, as about 2500 plants in different stages of growth are cultivated. After the recent controversies in the *Journal of Horticulture* respecting the growing of Malmaisons it may be interesting to know that Mr. Barnes is a strong advocate of the non-syringing principle, and believes in maintaining a gentle current of air to avoid a murky atmosphere, and dusting the plants very lightly about once a fortnight with flowers of sulphur. No sign or spot of disease is to be seen, and the success of this method is apparent in the healthy condition of the plants themselves. About 2000 plants of border varieties are also grown, amongst which I noticed Miss Jolliffe, Miss Mary Godfrey, Lady Nina Balfour, and Uriah Pike.

The capacious orchard house, used during the season for the exhibition of Chrysanthemums, for which purpose it is admirably adapted, is substantially built. It is now filled with Pears in pots, chiefly Easter Beurré, Pitmaston Duchess, and Glou Morceau; Plums, Coe's Golden Drop and Jefferson; besides a number of Peaches and Nectarines. Strawberries for forcing are to be found everywhere, 4000 plants being needed to keep up the supply, consisting mainly of Keens' Seedling, Sir Harry, and Vicomtesse Hericart de Thury. To meet the constant demand for cut flowers, about 2000 Poinsettias and a like number of Euphorbia jacquiniæflora are annually grown, and, in addition to these, about 500 Roses are forced, while the number of bulbs of all descriptions amounts to many thousands.

The spacious vegetable garden, from which the kitchen supply is produced, is situated about a mile away from the mansion, so that time would not allow an inspection of this department. At this dull time of the year, however, little can be said of these, and the flower gardens, the latter of which—now planted with Wallflowers, bulbs, and other spring-bedding plants—are tastefully laid out in Italian style in front of the mansion. An interesting feature in the grounds is that here and there, through the masses of shrubbery, can be seen pretty landscape views of the winding River Dee and the country beyond.

No description of Eaton could be considered complete without special mention of the bothy, built in 1893, for the accommodation of the

young gardeners, under the supervision of Mr. Barnes. It is an imposing building, commanding a pleasant outlook, and built on the latest sanitary style, being furnished with kitchens, dining and sitting rooms, bath room, and lavatories, and the whole thoroughly ventilated and heated by a system of hot air. It is gratifying to know that the proprietor takes such an interest in the comfort of those in his employ, as in many establishments the comforts of young gardeners are sadly neglected. The air of neatness and order which prevails throughout the establishment is ample proof that the whole is under the care of a master hand, to whom great credit is due.

After partaking of the kind hospitality of Mr. and Mrs. Barnes, I again proceeded homewards, with notebook well stocked with useful information and mind full of pleasant recollections of my visit to Eaton.—G. H.

PROBLEMS IN VINE CULTURE.

I CANNOT say that I have ever feared attacks of red spider on Vines. Some cultivators dread this pest, and have long since come to the conclusion that it is next to impossible to grow Vines without an attack of it. Looking back over several years I cannot help concluding that some cultural defect is the cause of an attack by this enemy. When Vines are arranged directly over a number of hot-water pipes and hard forcing is resorted to red spider will appear, but even under these circumstances if timely action is taken its progress may be readily arrested. When the insects appear I have always found sponging the leaves with a weak solution of softsoap and a little sulphur added ample for destroying it. It should be taken in hand in time and not allowed to spread over the vinery before an effort is made to subdue it.

In May, 1890, when I came here, one of the vineries had the leaves at that early period of the year nearly yellow with an attack of red spider. The house was a late one, and the Vines just coming into flower. They flagged daily when there was a little bright sunshine. On examination the border was found to be saturated, and fully 1 foot of material was removed from the surface. The border was pointed over with a fork and dried, no water being given during the season nor sprinkled in the house. "A good method of increasing red spider," some will exclaim. Under some circumstances it might have been, but as the border became dry the Vines commenced growing and the spider disappeared. I do not remember having seen any in the house since. My experience leads me to the conclusion that a check to Vines from any cause whatever may predispose them to an attack of red spider.

Unfortunately, it has been my lot to practise nearly all through my gardening career where the Vines have been infested with mealy bug, and consequently the rods were peeled annually. I do not admire the system; it seems unnatural, and I never practise it where it can be avoided. While at Norris Green I barked some Vines annually for thirteen seasons, the rods swelled, and the Vines very much improved. I do not think this annual barking does much harm provided strong insecticides are not used afterwards. It is impossible to remove the bark closely without cutting into the inner bark more or less, and strong insecticides are then certain to prove injurious.

When Vines, through barking and dressing, assume a bright polished appearance like the wood of Plum trees something is radically wrong, and injury results. They do not appear to form fresh layers of bark, but seem to be hide-bound. This is caused by strong insecticides after barking. After a moderate barking, and a good washing with softsoap and water, also thoroughly cleaning the house, I have every faith that mealy bug may be eradicated from our vineries by the use of nicotine vapourised in the atmosphere. One fact is certain—it will destroy all bug in an active condition, and does not appear to injure the fronds of the most tender Ferns.

I well remember Mr. W. Taylor's writings on the barking of Vines, and do not regard his last contribution in any way inconsistent with his previous practice. Exceptional cases often require exceptional remedies. His article is welcome as pointing out injury that he thinks results from the practice of barking.

From my experience, however, I think Mr. Taylor must look to some other cause than mere barking for his Vines not doing so well. The roof being covered or partly covered with foliage would protect the stems to a very large extent. The Vines appear to have lengthened out their growth satisfactorily, thus exhausting the reserve material that had been stored up for them. The roots should then have been in an active state, bringing up fresh supplies. Vines that are not barked sometimes flag for a few days after the reserve stores of food have been exhausted, and before root action has commenced. Especially is this the case when the roots are outside and the sun is bright. Under these circumstances we damp the house more frequently, and are careful to allow the Vines to move gently, in fact we never hurry them until signs of root activity are apparent.

The established Vine, to my mind, makes much of its growth by the aid of the food stored in the stems the previous season. Then the food taken up by the roots is mainly devoted to the development of the growth, and for filling the reserve organs with nutriment for the following season.

Firm, well-matured wood, the reserve organs abundantly stored with food, the main foliage stout, clean, fully exposed to the sun, and retained until it naturally turns yellow or assumes other colours, with well-matured roots near the surface, are the essential conditions for insuring success, or in other words healthy Vines and excellent Grapes.—W. BARDNEY, *Osmaston Manor*.

POTATOES.

WHILST gardeners generally are almost driven to their wits' end to keep up heat in forcing and greenhouses during the present intensely severe weather, it is feared that there are numbers of cases where less thought is bestowed on the safety of Potatoes both for consumption and seed. In how many cases are these stored where under ordinary conditions they are perfectly safe, but are not at all protected in such a way as to resist repeated frosts of such intense severity as from 20° to 30°? It need hardly be said that the protection required in such cases usually exceeds not only what is held requisite, but what often can be afforded. Hence it will be no matter for surprise later to learn that in all directions seed tubers especially have been frosted and spoiled. Whatsoever may be the nature of the temperature when this is read, it is certain that advice to afford the tubers more protection will come far too late. The horse will have already been stolen.

I have charge of a considerable quantity of seed Potatoes in numerous varieties. Most of them are in shallow boxes, and all of the later ones are safe in a cellar, where there is ample air in circulation, and a fairly equable temperature. Some others in larger quantities I have in hampers at the coolest part of my kitchen, chiefly *Magnum Bonums*, safe and keeping well, whilst early sorts in boxes that have already made growth are kept securely covered in a top room, where in open weather they can get abundance of light and air. As I have thus stored some five or six bushels in all, I mention it to show how possible it is with absolutely no outdoor appliances or room to house Potatoes safely during very hard weather, if to that end very special efforts be made. The possession of medium sized flat deal boxes in which Potatoes can be stored for winter preservation, is an advantage that cannot be over-estimated. Thousands of persons who may have a few bushels of seed stored in pits outdoors, or in heaps in sheds, or in large boxes or tubs or on shelves, and are in a condition of grave anxiety respecting the safety of their seed tubers, would, if they had them in such boxes as I have, and for lack of other room placed two or three deep even under the bed, would sleep far sounder at night in consequence than they do now. I shall expect to learn that farmers, market gardeners, and cottage gardeners have suffered very heavily indeed, unless they have taken precautions far in excess of what are usually deemed sufficient.

The disaster which happened to Potato breadths at the end of May last gave a warning that it would be folly to ignore. Without doubt, breadths that had, as was so general, the tops cut to the ground had to suffer also an average tuber loss of fully one-third of the crop. That was a matter of such serious moment no one should fail to remember. I fear few will regard the warning any the more. No doubt there will soon be seen the same haste to plant, and to get the tender tops above ground some time before the season of late frost is over. To have specially early sorts thus early above ground is all very proper where some kind of protection can be afforded, but to have the main crop breadth thus exposed to danger is, after previous experience, so manifestly unwise that those who do suffer loss have only themselves to blame.

I venture to suggest, in view of a possible recurrence of such a disaster again this year, that general planting be deferred to the end of April, and if in the meantime the sets have been properly prepared by exposure to light and air in shallow boxes, they will at planting time be so far advanced in growth that practically they will be equal in precocity to other and similar sets that were planted some three or four weeks earlier. Long experience has satisfied me in respect to securing both early and abundant crops that the condition of the sets when planted has as much bearing upon the results as almost any other element in Potato cultivation. As a matter of ordinary security, I would far sooner see Potato tops just showing through the ground, if they be as they should be—stout and robust, on May 25th, than twenty days earlier. Of course, I except those very early sorts that can have some kind of protection afforded. I have no doubt, having regard to the prolonged intensity of the frost we are now experiencing, it

will largely be concluded that the winter cold will have expended its forces, and that we shall have a comparatively safe mild spring. That is a more comforting than safe doctrine. It is best to take nothing for granted, and if there be any error at all in the later planting of Potatoes, and I cannot admit there is, then will it be an error on the safe side.

I am often asked to state what new kinds of Potatoes there are being put into commerce. Really in connection with Potatoes we move very slowly now. There is a very narrow field open for improvement; as evidence of that we see comparatively few new varieties being put into commerce, a sign of undoubted wisdom on the part of the trade. There never will be again seed Potato booms. The days of 2s. 6d. per lb. once paid are past; indeed, it is hard now to get 6d. per lb. for novelties, and they should be superlatively good to be worth so much. Unless I had before me the whole of the Potato lists in issue I could not state how many new sorts are being sent out, and even if I could I should still be haunted by the fear lest some of these should be mere seedling reproductions of old varieties. That not a few of the *Magnum Bonum* strain now so numerous are just that and no more is certain; that even in such case they do bring to us some moderate access of strength and energy over others some time in commerce there can be no doubt. Still, I have always found that where tubers for such purposes be saved from the best kinds, and stored under proper conditions, that there is practically no loss of robustness of productiveness, even after many years of growth.

We see very interesting seedling trials conducted every year at the Royal Horticultural Gardens, Chiswick, and as last year it usually happens that some half dozen sorts seem to exhibit very remarkable productiveness; but then the value of the trials is much minimised because there is so little of available space for the growing also the older standard sorts for comparison, so that relative merits could be fairly tested. It does not follow that there may not be just a few each year that show some small advances. To find out such merits growers generally should purchase annually a few pounds' weight of new kinds and test them, and specially so from own-saved seed a second year, as I have usually found that to be the best test trial after all. The initial outlay is small, and the result with Potatoes always profitable.

It is most difficult to furnish a good selection suitable for all purposes and soils. It is so common for a variety which succeeds admirably in one place to be unsatisfactory in another. Still there are many varieties that are generally reliable. Thus as first earlies *Ringleader* and *Laxton's Early* are good; then come *Early Puritan*, *Duke of Albany*, *Early Regent*, *Snowdrop*; and for later crops of white kidneys, *Chancellor*, *The Bruce*, *Main Crop*, *Reading Giant*, and *Magnum Bonum* are first-rate; whilst of Rounds, *Triumph*, *Supreme*, *Windsor Castle*, *Prime Minister*, *Quantity and Quality*, and *Sirius*, are equally excellent.—A. D.

WELCOME AND UNWELCOME GUESTS.

IN his interesting lecture at the Birmingham Gardeners' Mutual Improvement Society last week (referred to on page 117) Mr. Wills designated as "unwelcome" guests such insects or animals as would attack the flower itself or abstract its nectar without assisting fertilisation, and "welcome" guests those that assisted fertilisation. Of these, wingless or crouching animals are specially disadvantageous, because in passing from flower to flower they would generally steal the nectar, which is at once the inducement and the reward of those winged insects which are chiefly concerned in the processes of fertilisation, and would remove the pollen without transferring it in due order to the stigma; also because, unlike those "welcome" guests, they are rovers, not confining their visits to one species at a time. Of all those wingless creatures perhaps ants are the worst and most dangerous enemies.

Mention was made as to the almost innumerable protective appliances, corresponding to the endless variety of possible visitors, great or small, soft or hard, winged or wingless; also that one flower is guarded by several distinct means, which fall into definite types of defence, either direct or indirect in their action, and of which such as hairs, prickles, and viscid secretions form a large proportion. Special reference was made to water as an impediment of access of insects and creeping animals to some flowers, as in some of the *Bromeliads*, *Dipsacus*, the alpine *Gentians*, and others; whilst plants which grow in water, such as *Water Lilies*, *Butomus*, *Sagittaria*, and *Alisma* are absolutely protected, and for this reason the stems of these are freed from hairs, bristles, or opposing processes of any kind.

In connection with this matter it was pointed out as a remarkable fact that at least one water plant—the common *Polygonum amphibium*, which, as its name implies, continues to live when the water is drained from around it—adapts itself to its new environment by developing, as soon as the necessity of protection has arisen, innumerable glandular hairs on the leaves and stem, from which a sticky substance is exuded, on which if a creeping insect steps he is at once effectually bird-limed. This plant will flourish for years on dried-up ground, but if this becomes

again flooded the glandular hairs at once disappear, being of no longer use to the plant, and by alternate floodings and drying up the two conditions of stem and leaves may be reproduced in turn over and over again on the same plant.

This mode of protection is especially frequent, and is an excellent defence to the nectar; the viscid matter being secreted either from the ordinary cells of the stem or from glandular hairs. Conspicuous examples are afforded by the extensive order Caryophyllaceæ—*e.g.*, *Silene muscipula*, *Silene viscosa*, and *Holosteum glutinosum*, the inflorescence of *Lychnis viscaria* being especially provided with viscous matter, thereby affording a most efficient death trap. In *Pinguicula* (Butternut), and in some *Primulaceæ* there are radical rosettes of leaves spread out on the ground, coated over with tenacious viscid slime, secreted by small glandular hairs, of which 2500 are crowded into each square inch in some species. No small animal which ever came into contact with this ever escapes alive, but its body is dissolved by the secretions, and the dissolved nitrogenous constituents digested by the plants.

Many plants which secrete a milky juice are protected by this secretion—*e.g.*, several species of *Lactuca* for ants and other small animals having their feet terminating in sharp hooks lacerate the tissue, producing a flow of juice, and in their efforts to extricate themselves they struggle and bite, their position becomes worse every moment, and as the viscous secretion is more and more effectually exposed to the air, so it hardens the more rapidly, until their movements become weaker and weaker, and they speedily die. Regarding flowers which possess hairs or prickles in their interior, and which act as barriers to the ingress of some insects, and especially to such as bees and larger flies, they act as path-finders, as in some of the *Labiates*; and in the genus *Cypripedium* there is a special contrivance, the mode of access and escape of the insect being humorously described by the lecturer, and who also remarked that this arrangement seems to have escaped the notice of Dr. Kerner.

Having adverted at considerable length to the conformation of certain flowers and their nectary organisation, and especially that remarkably long caudate nectar-containing appendage of the beautiful Orchid *Angraecum sesquipedale*, and which can be reached only by the correspondingly long proboscis of certain moths, natives of this Orchid's habitat, Madagascar. Reference was made to day-closing and night-closing flowers, in association with day-flying and night-flying insects; also to the odours and colours of flowers, which serve as attractions to invited guests. The lecture was listened to with rapt attention, and it was rendered further instructive by the display of a series of large pencil diagrams, beautifully executed for the occasion by Mr. Wills himself.

Mr. W. Gardiner afterwards alluded to the processes of fertilisation effected by insects in such flowers as those of the Ivy and Aucuba, as the sexual differences of such organised plants render insects or other artificial agency necessary for their fecundation.

THE TOMATO SUPPLY.

MR. IGGULDEN'S able communication (page 88) on this subject has been read with great interest by many practical growers, and also by many who were under the impression that Tomato growing was very profitable. Many men have embarked on this enterprise through the fact that they have grown good crops in their small greenhouses, and consequently think they can do the same in large houses. I fully agree with Mr. Iggulden that there is "money in it" if properly sought after; but to suppose a person can invest a few hundred pounds without a knowledge of market growing and reap a fine income is sheer folly. Throughout the Lea Valley hundreds of glass houses are annually erected solely for market growing, the principal crops being Cucumbers and Tomatoes, and many of the growers appear to be flourishing, but there is a "large seamy side" also to be found.

Your correspondent seems to be under the impression there might be a glut of fruit during August and September if all the crops were a success. As a matter of fact such a glut does take place often during these months, but not in such seasons as last year. And again, it should be remembered that the Tomatoes that usually come into the markets at that date are not considered main crops. In reality they form a kind of catch crop, and generally speaking are from houses that have been filled with plants, such as Ferns, pot or bedding plants, which are usually cleared out in May, and the Tomatoes taken from 5-inch pots to plant in their places. Last season my Tomato crops were the most profitable I have ever obtained, prices being very satisfactory. I never remember seeing the plants so heavily laden near the ground; I did not experience the difficulty mentioned by your correspondent, viz., bad setting of the later trusses. In cases of a similar character I should undoubtedly conclude the scarcity of pollen was due to impoverished plants. Once we can secure a good set of the lower trusses there should be no difficulty with those following later. I fear in cold seasons, such as last, growers are afraid to ventilate, under the impression that the crops will be late, but it is better to have a good crop, if a few weeks later, than half a crop which produces 2d. or 3d. per lb. more.

The disease which Mr. Iggulden so ably describes as "black stripe" was the only one that gave me any trouble last season. In a light buoyant atmosphere it develops very slowly, but under a warm moist condition it grows rapidly. There can be no doubt whatever this disease is traceable directly to the roots. If a stem so affected is cut across the brown lines can be seen quite clearly. Directly it was

discovered the plant was pulled out and burnt, while the gap was refilled by plants growing in No. 16 pots, so the house was always kept full. In cases where cultivators hesitated to remove the plants because they had a few good bunches of fruit on them it appeared to lead to a further spread of the pest. I have also resolved to adopt the sulphate of iron remedy, or rather preventive, so strongly recommended by Dr. Griffiths, his figures showing clearly it was beneficial. A great number of market growers are now largely adopting chemical manures for Tomatoes, and numbers have already worked in their potash in the form of kainit ready for next season; but in some soils decayed farmyard manure is preferable, because it renders it more porous, and consequently warmer.

I am surprised to find Mr. Iggulden makes no mention whatever of the most popular market Tomato, *Chemin Rouge*, as quite 75 per cent. grow no other variety. Challenger I have found to be a good one, and the Duke of York is likely to prove very valuable in this respect, as where well grown last year it turned out splendidly. Many growers who have seen *Frogmore Selected* in the flesh will be giving it a trial, for it was always good whenever Mr. Owen Thomas staged it. My own packet will be sown by the time these notes appear.—JAS. B. RIDING.

HYACINTHS CASTING FLOWER SPIKES.

THESE popular bulbs frequently, during the throwing up of their flower spikes, cause much disappointment. In several cases

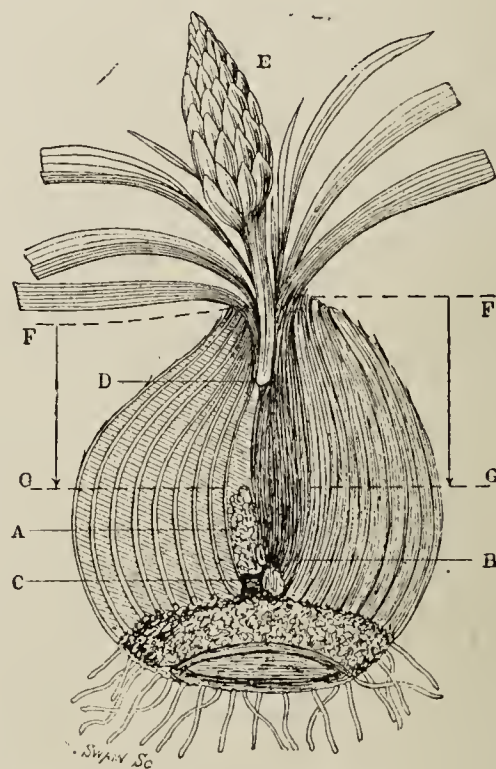


FIG. 26.—HYACINTH CASTING ITS FLOWER SPIKE.

20 per cent. of them cast their spikes just when they appeared from the apex of their respective bulbs.

The cause of the flower spike being cast is the forcing forward of the embryonic flower spike (fig. 26, A) by the growth of foliage from the base B, the flower spike appearing before the leaf growth, and it manages to push its way through the bulb scales, which are drawn together for protection at the apex. The growths from the leaf bud are equally anxious to reach daylight and strive to push through the apical orifice, and being below the flower-spike pips and the thicker part of its stem the neck of the bulb becomes choked. Something must give way, and the matter is soon settled by the part containing the most vigour—the leaf growth. If the bulb scales give way, well and good for the flower spike; if not the leaf growth pushes its way through the aperture, throttling the stem of the flower spike and forces it out of its way, snapping its connection with the bulb at the point C. Presently, the lower part of the stem (D) shrivels and the leaf growths are the better able to push the flower spike forward in their growth, and almost, if not, clean out of the bulb as shown in the spike at E.

Thus Nature maintains the "survival of the fittest" in the struggle for existence by mastery, and is not by any means a new thing, nor confined to cultivated plants, yet it is far less common in natural grown. It may be seen in the wild Hyacinth (*Scilla nutans*), the flower spikes shrivelling in their sockets, and it is a strange thing that it occurs more seldom in shady and damp places than in those that are open, sunny, and dry. But this really is the key to the situation, and we are bound to take cognisance of the fact that bulbs are ripened much too quickly and kept out of the ground far too long, for the predisposition is over-

maturity of bud formation through dryness of season, too quickly facilitated by early lifting or bulb induration. The harder a bulb is grown the firmer its scales and the tighter they grasp the embryonic flower and growth buds in their interior to protect them from external influences. Of course growers of bulbs act on that principle to harden them and render them less susceptible of attack by fungal and insect pests, for the more compact the bulbs the less are they amenable to invasion by *Polyactis cinerea* and to mites, which are generally associated in the same diseased bulbs.

The only remedy, so far as I know, is to cut the bulb through the outer scales vertically downward from F to G at planting, taking care not to injure the part containing the flower spike and growth. By that means the apex of the bulb opens and the flower spike has room to emerge and develop without being forced off by the leaf growths.—G. ABBEY.

SPRAYED POTATOES.

THE accompanying block (fig. 27) for the use of which I am indebted to the kindness of the Editor of the "Irish Farmer's Gazette,"

It may interest some of your readers who are not farmers to know that the fungicide was also used by one of the farm hands on his own "lazy beds," with the result that his enterprise was rewarded in that, while one unsprayed "lazy bed" only produced 28 stones of good Potatoes, the adjoining one which had been sprayed returned 50 stones of sound tubers—nearly double!

In the first of the above instances there was, I must add, considerably over an Irish acre, which was treated in the bulk, but divided into plots for the purpose of obtaining reliable data, so that it was not altogether experimental.

For the rest, the photograph which was taken by Lord Clonbrock speaks for itself.—J. S. KERR, *Roscommon*.

PEELING AND CLEANING VINES.

So much has been written on the barking of Vines that I think much can be learned from the opinions of such practical men whose names appear in the current controversy. In answer to "J. S. G.'s" practical question, I say thoroughly clean the loose bark off, but do not scrape the Vines.



FIG. 27.—POTATO SPRAYING.

exhibits at a glance the effect of a sulphate of copper application to a crop of Champion Potatoes grown by Lord Clonbrock on his home farm at Clonbrock, Co. Galway.

The original photograph was taken at the end of last September, and shows the disparity in the condition of separate sections of the same crop at that date, the whole of which was grown under identical conditions, but of course, with the addition in the one case of the dressing.

The land is medium clay loam, well cultivated and manured, and kept properly cleaned. The growth of the crop was even until the appearance of the blight, before which occurrence, however, the part of the field shown had received its first dressing, and was treated three times in all. Some parts dressed only once showed little, if any, superiority to the undressed drills. The composition was that ordinarily used, that is 20 lbs. sulphate of copper and 10 lbs. of lime to 100 gallons of water. The calculated cost of the three applications in this instance was, I think, excessive; taking it, however, as it stands and without entering into what might prove misleading details, I find that a series of small plots of land of a given area, when treated exactly as an acre in bulk would be treated, required each an additional outlay of 7d., which is in the same ratio as the total cost of the dressing per acre. For this they individually showed an increase of from 3 to 6 stones of sound marketable Potatoes over and above the production of similar and contiguous plots that had not been so treated. This at 3d. or 4d. a stone works out a substantial balance on the right side.

I have taken a small range of vineries, which are badly infested with mealy bug. The Vines have not been barked for years. To attempt to eradicate the pest, as "D. P." informs us he is trying to do, I should consider it simply waste of time, for it is well known that as the temperature of the house is lowered to ripen the wood, so does the bug find its way closer to the rod. Even when the bark is perfectly smooth they are found hidden so secure that no mixture would reach them without their being first exposed by removal of outer bark.

As "B. S." suggests, and not other reasons, barking to some extent accounts for the lighter crop of Mr. Taylor's Grapes, and should he obtain a crop up to his usual average this coming season, will it not be as much from the improved health and cleanliness of the Vines as from the additional bark they will have made?

Often has my attention been called to the magnificent and highly finished bunches of Grapes staged at Bath and Bristol shows by Mr. Nash. Though ignorant of his mode of treatment, I was fully aware that such good results could only be produced by a practical man fully acquainted with the requirements of the Vines. I trust Mr. Nash will favour us with his opinions through the medium of your valuable paper.—W.

AFTER Mr. Taylor's conclusive testimony (page 121) as to the advantages of retaining the bark on Vines, there remains but little to be said in further support of it. As he so pointedly observes, when one begins to pull off loose bark there is no telling where one will stop. Loose bark that is fairly clear of the Vine is of no further use, and, as I

SPAWNING MUSHROOM BEDS.

IN reply to "Mushroom" (page 102) I should say that if the manure had been properly prepared it was unnecessary to take the bed out and mix it with other manure, as a temperature of 120° a few days after making the bed is quite common, and at this time of the year would not have become too dry by overheating. There is a great danger in spawning beds at too high a temperature, and from my own experience more beds are ruined from this cause than any other. If the heat is declining 80° to 85° is a safe temperature at which to insert spawn in the beds, but it would be better to do so at 70° or even less. In testing the heat of a bed the thermometer should be placed in the manure at the same depth as the spawn is put.

Having now for several years past grown Mushrooms on open air ridges on commercial lines perhaps a few words on the subject may be of interest. I have been indebted for many useful hints to the book "Mushrooms for the Million," also to Mr. J. F. Barter, the well-known manufacturer of Mushroom spawn, and although we had some partial failures we have had our share of success. We now very nearly dispense with the Mushroom house, as much better crops can be grown in the open air. The house is useful, however, to make up a small bed or two to come in at midwinter, to gather daily for home consumption, as during severe weather like the present, with the thermometer down to within a few degrees of zero, it would not be advisable to uncover the beds out of doors each day. Although we have had over six weeks of continuous frost, the thermometer this morning, February 6th, registering 27° of frost, the outdoor Mushrooms are not injured. They do not grow much during such weather, but directly there is a change in the temperature the beds will bear freely again. The ridges are well covered with litter, and over this is several inches of snow keeping the beds frost-proof.

The present is a good time to collect the manure as it comes from the stables, and put it in a heap in the open. The long litter should be shaken out, and put in a dry place, as this will be required to cover the beds after they are made up. When several cartloads have been collected the whole heap should be turned over, and if dry well watered. It must then be turned three times a week, and it will take about three weeks to prepare. The ridges should be 2 feet 6 inches wide at the bottom, the same in height, and about 6 inches wide at the top, though beds made at midwinter will hold the heat better if made 3 feet wide at the bottom. When all is finished off the whole must be made firm. Start by putting a foot of manure at the bottom, make it firm by treading, and as it increases in height stand on the ridge and well beat the sides with the back of an ordinary digging fork. When the desired height is reached finish off neatly, then cover the whole with about 6 inches of long litter that had previously been shaken out of the manure, except about 6 inches on the top of the ridge, where it may be about 3 inches deep, to allow the moisture to escape, and in a few days the heat will probably go up to about 120°. When it has fallen to 85°, which will be in about ten days, spawn may be inserted.

This is done by dividing an ordinary brick of spawn into eight parts, inserting each lump about 9 inches apart over the whole surface of the bed, and about 2 inches in depth. The bed must then be covered with about 1½ inch of good, fairly moist garden soil, and be well smoothed over with the back of a spade. It will depend on the heat of the bed, and the outside temperature what thickness of litter is required. In warm weather 6 inches will be sufficient, but in cold weather 1 foot or more will be needed. Keep the surface of the bed as near 60° as possible for a month or six weeks after spawning, and afterwards a lower temperature will suffice. Mushrooms will appear in about six or eight weeks from the time of spawning, but should the weather be very cold they may be longer. Spring and early autumn are the best times for making the beds.—GEO. SUMMERS, Sandbeck Park.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 12TH.

THE COMMITTEES.

AS might have been expected, owing to the severity of the weather, the meeting at the Drill Hall was a very small one, and comprised Orchids principally, though a few fruits and flowers, including Rhododendrons, were shown.

FRUIT COMMITTEE.—Present: Philip Crowley, Esq. (in the chair); with Rev. W. Wilks, Messrs. Geo. Bunyard, P. C. Veitch, G. Goldsmith, J. H. Veitch, J. Cheal, W. Pope, Alex. Dean, T. Glen, J. A. Laing, W. Bates, W. Farr, C. Herrin, J. Hudson, F. Q. Lane, A. H. Pearson, and G. H. Sage.

Mr. G. Harvey, gardener to Major Thornhill, Bakewell, Derby, sent a handsome collection of Oranges, for which a silver Banksian medal was recommended. Mr. A. G. Nicholls, Nuneham Park, Abergavenny, staged Onion Nicholls' Favourite.

Messrs. T. Rivers & Son, Sawbridgeworth, received a silver-gilt Knightian medal for a collection of Oranges, including Silver Egg, Bitten Court, Dom Louise, and Maltese amongst others, all in splendid condition. A small collection of Apples was sent by Messrs. J. Peed and Sons, Norwood.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); with Messrs. J. Fraser, Owen Thomas, John Laing, H. Herbst, Richard Dean, E. Molyneux, George Stevens, H. Briscoe-Ironside, H. B. May,

J. Jennings, J. H. Fitt, J. W. Barr, W. Bain, W. J. Grant, Chas. T. Druery, J. D. Pawll, Robt. Owen, Chas. E. Shea, H. J. Jones, C. Blick, H. Turner, Geo. Paul, Ed. Mawley, and Chas. Jeffreys.

Messrs. Veitch & Sons, Chelsea, staged a collection of Javanico-jasminiflorum hybrid Rhododendrons, comprising several of the best varieties, such as Ne Plus Ultra, Rose Perfection, Primrose, Purity, Star of India, Imogene, Luteo-roseum, Monarch, Conqueror, and Empress. Considering the present inclement weather, and the many difficulties arising from such, the collection was well worthy of merit, as also was the smaller exhibit of multicolor hybrid Rhododendrons, conspicuous amongst which were, Ruby, Mrs. Heal, and Neptune.

Messrs. Paul & Son, Cheshunt, staged a bunch of Azalea mollis blooms cut from English-grown plants. A vote of thanks was given to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, for a well bloomed plant of Thyracanthus rutilans. Mr. J. E. Burton, gardener to Sir G. Paul, Bart., Cambridge House, Twickenham, staged a collection of plants of single Primula, Bouquet, obtained from seeds sown in June, 1894. The blooms were fine, of good substance, and the plants well grown.

A group of new single Primulas, Lady Evans, was exhibited by Mr. G. Einton, gardener to Sir David Evans, Ewell Grove, by whom they were raised; the flowers are pure white, and of good substance. Flower spikes of Hæmanthus Kalbreyeri were staged by Messrs. Sander of St. Albans.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair); with Messrs. James O'Brien, F. Hardy, W. H. White, E. Hill, Jas. Douglas, H. J. Chapman, H. Ballantine, E. Ashworth, W. Thompson, Walter Cobb, and H. M. Pollett.

From Messrs. J. Veitch & Sons came *Calanthe Masuco-tricarinata*, said to be a new garden hybrid, and *Cymbidium eburneo-Lowianum* superbum. From Mr. E. Hill, gardener to Lord Rothschild, Tring Park, came a fine spike of *Lælia superbiens*, and also one of *Phalænopsis intermedia Portei*, for which a first-class certificate was awarded.

Mr. Fred Hardy, Ashton-on-Mersey, staged a collection of Orchid blooms, including some good Cattleyas, Dendrobiums, and Phalænopses. Messrs. F. Sander & Co., St. Albans, also showed a group of cut Orchid blooms, including *Dendrobium luteolum*, *D. Statterianum*, *D. Eger-toniæ*, *Odontoglossum Humeum*, *O. coradinei albanense*, *Lælia anceps Schröderiana*, The Dell variety, and a few others. Mr. W. H. Young, gardener to Sir F. Wigan, Clare Lawn, East Sheen, exhibited some Cypripediums, including *Lathomeum*, *Wiganianum*, *Rothschildianum*, and *Stauroopsis (Vanda) gigantea*. Mr. H. J. Chapman, Cambridge Lodge, Camberwell, showed a handsome collection of dried Orchid flowers, in which the natural colours had been retained to an exceptional degree (silver Banksian medal).

A splendid spike of *Odontoglossum coronarium* var. *miniaturum* was staged by Sir Trevor Lawrence, Bart., Burford Lodge, Dorking. Mr. G. Cragg, gardener to W. C. Walker, Esq., Percy Lodge, Winchmore Hill, arranged a few blooms of various Orchids, comprising some good forms. W. Thompson, Esq., Stone, Staffs, also showed a collection of blooms. Baron Schröder, The Dell, Egham, showed a small but choice collection of Orchids, of which *Phalænopsis Youngi* received a first-class certificate (silver Banksian medal).

CERTIFICATES AND AWARDS OF MERIT.

Anthurium Perfection (Sir Trevor Lawrence).—This is a fine Anthurium, with a large, brilliant scarlet spathe (award of merit).

Calanthe Masuco-tricarinata (J. Veitch & Sons).—This is a garden hybrid with very delicately rose shaded flowers, this colour pervading the whole of the bloom (award of merit).

Cymbidium eburneo-Lowianum superbum (J. Veitch & Sons).—This is a handsome and rare hybrid, between eburneo and Lowianum, and carries four flowers on the spike. The prevailing colour is creamy white, the lip being heavily marked velvety crimson (first-class certificate).

Phalænopsis intermedia Portei (E. Hill).—This is a very floriferous form with white sepals and petals and lip with purplish rose tip and crimson base. The spike shown was exceptionally good (first-class certificate).

Phalænopsis Youngiana (Baron Schröder).—This is a splendid form with broad dull white petals, slightly tinged rose at the base. The upper sepal is of the same colour, while the lower are very pale rose spotted maroon. The ground colour of the lip is pure white, heavily spotted deep rose (first-class certificate).

ANNUAL MEETING.

The annual general meeting was held during the afternoon, a moderate attendance of members being present. Sir Trevor Lawrence, Bart., President, took the chair. Mr. McLachlan proposed a vote of thanks for the services of the retiring members of the Council. The Chairman, in the course of his remarks prior to moving the adoption of the report, said he was glad to say the general condition of the Society had made decided improvement, the fortnightly meetings had been much better attended than in previous years, and with regard to the Temple Show it was looked on as being as great a pleasure to the authorities of the Temple as it was to the Society, and it proved beneficial to the show, the plants being allowed to remain the whole three days.

The Crystal Palace show was also a marked success, as the returns showed a small profit. He was glad to say some gentlemen had subscribed generously towards supplying the prize money, and he hoped

that many more interested in fruit culture would do all in their power in this respect; he also wished to make special reference to the benefits derived from the different papers which were read at the show. He was pleased that steps had been taken towards placing judging at shows on a more general footing. It was very difficult to form any hard and fast rule, but great improvements might be made. He was sorry that, owing to the inclemency of the weather at the time, the conference on trees and shrubs held at Chiswick was altogether an unfortunate affair, though the papers read at that occasion were of a high order. In spite of this, however, the finances of the Society were in a very satisfactory condition, and he was sure all interested in the Society were pleased to see that it had emerged from the financial difficulties that once prevented its progress, and was now on a firm basis. In concluding his remarks he wished to add a few words of thanks to Mr. Wilks, the Secretary. He was sure that all present were delighted to see him in improved health, and he hoped he would soon be quite recovered. He also wished to thank Mr. Weathers, the Assistant Secretary, Mr. P. Crowley, and Mr. Barron of Chiswick for their able services.

In some discussion that followed, in which Mr. F. Barker, Mr. Ranger Johnson, Mr. Peter Finch, and the Rev. G. Henslow took part, suggestions were made that the Fruit and Floral Committees that were called together to go through the gardens at Chiswick and make awards should present their reports at the fortnightly meetings held at the Drill Hall, as these meetings were doing much to benefit horticulture.

The adoption of the report was then seconded and carried unanimously. Mr. Wilks, in a few brief words, thanked the Chairman for the kind words spoken about him; and Mr. H. J. Veitch proposed a vote of thanks to the Chairman, which was carried with applause, after which the proceedings closed.

REPORT OF THE COUNCIL FOR THE YEAR 1894-95.

THE year 1894 has again been one of steady work and progress for our Society.

Nineteen fruit and floral meetings have been held in the Drill Hall, James Street, Victoria Street, Westminster, besides the more extended shows at the Temple Gardens on May 23rd, 24th, and 25th; at Chiswick Gardens on September 25th; and at the Crystal Palace on September 29th, and October 1st and 2nd; and lectures have been delivered at fourteen of the meetings, exclusive of those given at the conferences. The number of awards has been as follows:—On the recommendation of the Floral Committee, 71 first-class certificates against 64 in 1893, 225 awards of merit against 201, and 3 botanical certificates against 6. On the recommendation of the Orchid Committee, 68 first-class certificates against 39 last year, 134 awards of merit against 86, 21 botanical certificates against 25. On the recommendation of the Fruit and Vegetable Committee, 15 first-class certificates against 16, and 12 awards of merit against 23 last year.

The Society's great show held (by the continued kindness of the Treasurer and Benchers) in the Inner Temple Gardens, and graciously opened by H.R.H. the Duke of York, was a greater success than ever, and it is a matter of satisfaction to the Council to find that this meeting is now universally acknowledged to be the leading horticultural exhibition of this country. The best thanks of the Society are due to all who kindly brought their plants for exhibition, or otherwise contributed to the success of this show.

The great show of British-grown fruit held by the Society at the Crystal Palace on September 29th and October 1st and 2nd was of national importance, and as an object lesson in British fruit culture it stands out unrivalled. It is needless to enter into further details, as full particulars will be found in volume xviii. of the Journal, issued at the same time as this report.

To one point, however, connected with the fruit show, the Council desire to draw the special attention of the Fellows and of the general public interested in fruit cultivation. The Society may well be proud of this show, but it must not be forgotten that the holding of the show was due to a very small number of gentlemen, who subscribed the £100 asked by the Council towards the prize money before they would consent to embark on the scheme. This year (1895) the Council have made arrangements with the Directors of the Crystal Palace to again hold a similar show, and they will be glad to receive offers of special prizes from any who are interested in British fruit culture. Donations towards this fund should be sent at once to the Secretary, the Rev. W. Wilks.

The Council have decided to devote the meeting of October 15th, 1895, entirely to an exhibition of vegetables. A special schedule of the show will be issued in April, together with one for the Crystal Palace fruit show.

The Conference on trees, held at Chiswick on September 25th, abounded in interesting material and in papers of the greatest use to landowners interested in woods and plantations, but unfortunately the weather was such as to make it exceedingly difficult to examine the multitude of specimens so kindly sent by contributors, to whom the best thanks of the Society are specially due.

The Society's general work of scientific experiment and investigation, and of the practical trial of various plants, has been going on steadily at Chiswick, under the superintendence of Mr. Barron. Trial has been made of 40 varieties of Cauliflowers, 86 of Peas, 116 of Strawberries, 55 of new varieties of Potatoes, and 67 of Tomatoes. In the floral department 400 varieties of Carnations and Picotees, 70 of Pinks, 78 of Cannas, 60 of Sweet Peas, as well as many Clematis, Campanulas, and Mignonette have been tried.

The following table will show the Society's progress in regard to numerical strength during the past year:—

DEATHS IN 1894.				FELLOWS ELECTED 1894.			
		£	s. d.			£	s. d.
Life Fellows	8	...	0 0 0	4 guineas	5	...	21 0 0
4 Guineas	3	...	12 12 0	2 "	90	...	189 0 0
2 "	16	...	33 12 0	1 "	231	...	242 11 0
1 "	14	...	14 14 0	Associates	8	...	1 11 6
	41	£60	18 0	Affiliated Societies	10	...	11 11 0
					339	£465	13 6
				Deduct Loss	214	4 0	
				Net Increase in In-			
				come	£251	9 6	
RESIGNATIONS.							
		£	s. d.				
2 Guineas	24	...	50 8 0	New Fellows, &c.	339		
1 "	98	...	102 18 0	Deduct Resignations and Deaths	163		
	122	£153	6 0				
Total Loss	163	£214	4 0	Numerical Increase	176		

The Journal of the Society has been continued so as to enable Fellows at a distance to enter more fully into and reap the benefits of the study and work of those actively engaged at headquarters. Vol. xvi., parts 2 and 3, and parts 1 and 2 of vol. xvii., were issued during the year, and vol. xviii., containing the reports of the conferences on trees at Chiswick and on British fruits at the Crystal Palace, is now ready for issue. The Council would like to remind Fellows of two very valuable volumes published in 1893, of which a few copies are left, viz., (i) a monograph on bulbous Irises, by Professor Michael Foster, Joint Secretary of the Royal Society; and (ii) a complete list of certificates to plants, flowers, Ferns, Orchids, fruits, vegetables, &c., granted by the Society from the year 1859 to January, 1893.

An examination in the principles and practice of horticulture was held on May 1st concurrently in different parts of the United Kingdom, a centre being established wherever a magistrate, or clergyman, or schoolmaster, or other responsible person accustomed to examinations would consent to superintend one on the Society's behalf, and in accordance with the rules laid down for its conduct. No limit as to the age, position, or previous training of the candidates was imposed, and the examination was open to both sexes. 126 candidates presented themselves for examination, and were divided into three classes. Eleven of the candidates gained 200 marks and more out of a possible 300 in the first class, 37 gained between 150 and 200 marks in the second class, 40 gained between 100 and 150 marks in the third class, and 33, having failed to obtain 100 marks, were not classed. The names and addresses of the successful candidates, together with the number of marks assigned to each, will be found in the Society's Journal, vol. xvii., 1894, page 67.

In connection with this examination it is satisfactory to record that Mr. W. N. Sands and Mr. G. F. Tinley were appointed to the two scholarships, value £39 a year, and tenable for two years, kindly given to the Society by Baron Schröder, Sir Trevor Lawrence, Bart., and the Worshipful Company of Gardeners.

It is proposed to hold a similar examination in May, 1895, and candidates intending to sit for it should apply to the Secretary, 117, Victoria Street, Westminster, during March.

In round numbers £1900 has been expended at Chiswick this year on the general work, and repairs and keeping up of the Gardens. The receipts from the Gardens by sale of surplus produce amount to £400, making the net cost of the Gardens £1500.

The Council, acting in conjunction with the Lindley Trustees, have devoted considerable attention to the Library. All serial publications have been kept up to date, a large number of valuable volumes have been bound, and the following new books, amongst others, added to the library—viz., "The Natural History of Plants," "The Forester" (sixth edition), "The Diseases of Trees," "The Genus Masdevallia," "Flowers of the Engadine," "The Gardens of the Sun," "Les Orchidées Exotiques," "Schneider's Book of Choice Ferns," "European Ferns," "Index Kewensis," (part 3), &c.

At the last annual meeting of the Society a wish was expressed that a Catalogue of the Library should be published. A fund to meet the expense was accordingly opened, and a sum of £80 has been received up to the present. The Catalogue is already partly advanced, although this sum will not be sufficient, but it is hoped that many Fellows, seeing that the matter is actually in hand, will now come forward with donations however small they may be.

The hearty thanks of the Society are due to the Chiswick Board and to all the members of the Standing Committees—viz., the Scientific, the Fruit and Vegetable, the Floral, the Orchid, and the Narcissus Committees, for the kind and patient attention which they have severally given to their departments.

The Council are of opinion that the special work for which the Narcissus Committee was originally appointed has, thanks to their labours, been so far accomplished that it will not be necessary to call together a separate Committee this year, but that this work may now be carried on by the Floral Committee, to which one or two Narcissus experts have been added.

The best thanks of the Society are due to all those who, either at

home or abroad, have so kindly and liberally presented books to the Library or plants or seeds to the gardens. A list of the donors has been prepared, and will be found in the Society's Journal, vol. xvii., parts 3 and 4, 1895. The Council also wish to express, in their own name and in that of all Fellows of the Society, their great indebtedness to all who have so kindly contributed, either by the exhibition of plants, fruits, flowers, or vegetables, or by the reading of papers, to the success of the fortnightly meetings in the Drill Hall.

A scheme for the affiliation of local horticultural societies was put forward in 1890, and sixty-five local societies have availed themselves of it. The Council express the hope that Fellows will promote the affiliation of local horticultural and cottage garden societies in their own immediate neighbourhood.

A special general meeting of the Society was held on July 24th, 1894, when the following addition to the bye-laws was adopted:—Bye-law 11A.—Any Fellow wishing to commute his annual subscription may do so by making one payment of 40 guineas in lieu of a £4 4s. annual subscription; or 25 guineas in lieu of a £2 2s. annual subscription; or of 15 guineas in lieu of a £1 1s. annual subscription; such commutation entitling the Fellow for life to all the privileges of the corresponding annual subscription.

The Council wishing to recognise in any way in their power the fact that Fellows residing at a distance from London are at some disadvantage in not being able so easily and regularly to attend the Society's meetings, have decided that in future all Fellows residing outside of a radius of thirty-five miles from London shall, in the annual distribution of plants, receive twice the number allotted to those who live within the said radius. The Council are conscious that this may

create a slight feeling of grievance with those who live only just within the boundary fixed, but this is inevitable whatever the radius may be, and they hope that Fellows, seeing the reasonableness of the principle involved, will gladly see it adopted, although they themselves may not benefit from it.

In order to meet a suggestion made by the Fruit Committee, the Council have decided to limit the number of dishes or baskets of fruit shown in any collection to 100 dishes or baskets of distinct varieties.

At the request of many secretaries of local societies, and of some of the most prominent judges at shows, the Council have consented to appoint a Committee to draw up a code of suggested rules and regulations for judging at fruit and flower shows, in order to secure, if possible, some sort of uniformity underlying the principles on which judging is conducted at shows all over the kingdom. The Committee have already begun their work, and will be glad to receive any suggestions, or information concerning cases of difficulty or doubt which have actually occurred within the experience of any.

The Council would like to draw the attention of all Fellows of the Society to the more extended use which the Scientific Committee might be to them if they availed themselves more freely of their privileges in submitting instances of diseases of or injuries to plants caused by insects or otherwise. The Scientific Committee is composed of gentlemen qualified to give the very best advice on all such subjects, either in respect to the prevention or cure of disease. The Committee is also glad to receive specimens of malformation or other subjects of horticultural or botanical interest.

Subjoined is the usual revenue and expenditure account, with the balance-sheet for the year ending December 31st, 1894.

ANNUAL REVENUE AND EXPENDITURE ACCOUNT FOR THE YEAR ENDING 31ST DECEMBER, 1894.

Dr.	£	s.	d.	£	s.	d.
To ESTABLISHMENT EXPENSES—						
Salaries and Wages	647	12	0			
Rent of Office	173	3	0			
Printing and Stationery	162	2	5			
Journal	315	12	6			
Postage	72	19	0			
Coal and Gas	4	13	1			
Donation to Auricula and Primula Society ...	10	0	0			
„ Carnation and Picotee Society ...	10	0	0			
Miscellaneous	166	4	4			
Lindley Library	47	1	0			
				1609	7	4
„ SHOWS AND MEETINGS—						
Rent of Drill Hall and Cleaning	102	13	0			
Temple Show	556	2	7			
Crystal Palace Fruit Show	281	8	0			
Advertising	18	11	9			
Prizes and Medals	384	9	2			
Printing, &c.	39	19	0			
Labour	79	17	11			
Repairs to Tents, &c.	30	18	0			
Superintendent of Flower Shows	50	0	0			
				1543	19	5
„ CHISWICK GARDENS—						
Rent, Rates, Taxes, and Insurance	304	6	1			
Superintendent's Salary	225	0	0			
Labour	734	5	9			
Implements, Manure, Soil, Packing, &c. ...	137	5	0			
Coal and Coke	197	6	7			
Repairs, Ordinary	80	8	8			
„ Special	198	6	0			
Water and Gas	10	8	4			
Miscellaneous	37	13	3			
				1924	19	8
„ Balance to General Revenue Account ...				472	9	2
				£5550	15	7

Cr.	£	s.	d.	£	s.	d.
By ANNUAL SUBSCRIPTIONS				3318	18	0
„ TEMPLE SHOW	1023	1	5			
„ CRYSTAL PALACE FRUIT SHOW	303	2	7			
„ DRILL HALL MEETINGS	32	17	0			
				1379	1	0
„ ADVERTISEMENTS IN JOURNAL, &c. ...				149	0	3
„ SALE OF JOURNAL				57	16	6
„ LINDLEY LIBRARY				22	1	0
„ MISCELLANEOUS RECEIPTS				113	8	9
„ DIVIDENDS—						
„ Davis Bequest and Parry's Legacy ...	56	18	4			
„ Consols, £1000	22	18	9			
				79	17	1
„ Interest on Deposits				6	16	9
„ PRIZES AND MEDALS				42	8	6
„ CHISWICK GARDENS—						
„ Produce Sold	378	10	3			
„ Admissions	2	16	0			
„ Miscellaneous	20	1	6			
				401	7	9
				£5550	15	7

We have examined the above Accounts, and find the same correct.

(Signed) HARRY TURNER, } Auditors.
HENRY WILLIAMS, }

HARPER BROS., Chartered Accountants.

7th January, 1895.

BALANCE-SHEET, 31ST DECEMBER, 1894.

	£	s.	d.	£	s.	d.
To SUNDRY CREDITORS				51	1	3
„ Subscription, 1895, paid in advance ...				82	18	11
„ Chiswick Scholarships				34	0	0
„ Life compositions				68	5	0
„ GENERAL REVENUE ACCOUNT:						
„ Balance, 1st January, 1894	2585	8	11			
„ Less bad debts	6	11	9			
	£2578	17	2			
„ Balance for the year 1894, as per Revenue and Expenditure Account	472	9	2			
				3051	6	4
				£3287	11	6

We have examined the above accounts, and find the same correct.

(Signed) HARRY TURNER, } Auditors.
HENRY WILLIAMS, }

7th January, 1895.

	£	s.	d.	£	s.	d.
By SUNDRY DEBTORS—						
„ Annual subscriptions outstanding estimated at	20	0	0			
„ Garden produce	34	7	5			
„ Rates and taxes (Chiswick) paid in advance ...	34	18	6			
				89	5	11
„ INVESTMENTS—						
„ 2½ per cent. Consols £2122 8s. 9d. ... cost	1892	11	3			
„ (£2022 8s. 9d. of this sum is held by the Society, subject to the provisions of the will of the late J. Davis, Esq.)						
„ 2½ per cent. Consols £1000 ... cost	975	1	6			
				2867	12	9
„ CASH AT LONDON AND COUNTY BANK—						
„ On current account	326	12	1			
„ CASH IN HAND—						
„ Head office	3	15	2			
„ Chiswick	0	5	7			
				330	12	10
				£3287	11	6



FRUIT FORCING.

Vines.—*Early House.*—The Vines in flower should have a temperature of 60° to 65° at night, and 70° to 75° by day artificially, but Muscats require 5° more both day and night. A somewhat drier atmosphere, secured by freer ventilation rather than withholding moisture, favours the development of the organs of fructification. Care, however, must be taken in ventilating during severe and sharp weather, avoiding an inrush of cold air, which chills and stagnates the growths, producing rust in the berries and crumpled foliage. A genial atmosphere must be insured by keeping the floors sprinkled two or three times a day in bright weather, but occasionally only in dull periods. Any shy-setting kinds, such as Muscats and Buckland Sweetwater, may have the pollen distributed by a camel's-hair brush, first brushing the bunches over lightly so as to dislodge the "caps," and then follow with a brush surcharged with pollen from the free-setting varieties, such as Black Hamburgh. Stop the laterals below the fruit at the first leaf, and keep those stopped to one joint throughout the season, but those above the bunch may be allowed to make two or more joints, provided there is space for the full exposure of the foliage to light and air. Heavily cropped Vines make correspondingly little growth, and the Grapes frequently do not colour, because there is not sufficient chlorophyll developed, and matter stored for conversion at the time of ripening into the purple, black or amber colour. When Vines make little growth it is a good plan to reduce the Grapes early, so as to secure some growth in the laterals, and so keep the roots active, thus maintaining a good supply of nutriment. This is better than relying exclusively on stimulants, for the assimilative power depends on the amount of foliage exposed to the influences of light and air, and a moderate nourishing diet is far better than forcing and excessive amounts of rich food.

Vines Started at the New Year.—The Vines are in leaf and showing the fruit in the points of the shoots. Do not hasten disbudding, but perform the operation gradually, removing the weak and least promising growths in the first instance, then give further attention when it is seen which shoots are likely to afford the best bunches. One bunch on a spur is as much as is likely to finish properly, but that is a very unsatisfactory estimate of the producing capabilities of the Vines, as the bunches are of different sizes; therefore judgment must be exercised, leaving no more than what is calculated to amount to a pound of Grapes when ripe per foot run of rod. Where the spurs are widely distant along the rod two shoots may be left on each spur, but one only must be allowed to bear fruit, the duplicate bunch only remaining until choice can be made of the better, and it is desirable to have the non-bearing growth nearest the rod, so that when the crop is cleared the most distant growth can be cut away, thus keeping the spur as short as possible, and the future crop produced by wood not previously decreased in vigour by heavy cropping. Weak Vines may be allowed more space so as to secure stouter wood, larger and plumper buds, and better bunches in the following season. When the growths are advanced about two or three joints beyond the bunches their points may be pinched off, this being effected when the leaf at the stopping joint is about the size of a halfpenny. Give the needful protection to outside borders, keeping the soil from becoming frozen.

Vines to Afford Ripe Grapes in July and August.—The Vines must now be started, and as they break more evenly and strongly when assured a moist, genial atmosphere, damp the rods two or three times a day in bright weather and sprinkle other surfaces. Occasional damping will only be necessary in dull weather, avoiding such syringing as keeps the rods constantly dripping with moisture, for the tendency in that case is to promote the emission of aerial roots, which certainly appropriate stored-up food and hinder the formation of roots in the border. A temperature of 50° at night, 55° by day, and 65° from sun heat is suitable until the buds begin to move. Bring the inside border into a thoroughly moist but not saturated condition by repeated waterings with tepid water, and if the Vines are weak and the soil open afford a supply of liquid manure after it is watered sufficiently for healthy growth. The soil will then retain most of the manurial elements, and they will pass into an assimilable form, or such as is available for taking in by the roots, and will accelerate root activity as well as supply nourishment. The outside borders should have sufficient protection to prevent chill, a little stable litter being all that is required. Avoid thick coverings of manure, particularly when likely to settle into a close mass to the exclusion of light, air, and warmth. Give preference to rather lumpy, partially decayed material, which will admit of the free access of air.

Late Houses.—The Vines being cleared of the Grapes early in January, then pruned, dressed, and the structures thoroughly cleaned, afterwards removing the loose surface soil and supplying a top-dressing of fresh loam with an admixture of fertilising ingredients, they will be ready for starting whenever desired, as they will have the wounds made in pruning so healed as to prevent bleeding and derive benefit from the complete rest. The varieties taking a long time to grow and mature

perfectly, such as Gros Colman, Gros Guillaume, Trebbiano, and Mrs. Pince, must be started in good time, so as to give them the benefit of the summer for developing and maturing their crops. A start should therefore be made without further delay, as it is essential to the perfecting of the Grapes, especially those subjected to the highest cultivation, that the Vines be started so as to be perfectly finished by the middle of September. Strong rods should be brought into a horizontal position or lower, and a good break secured by maintaining a genial condition of the atmosphere, and syringing the Vines occasionally in dull, or two or three times a day in bright weather. A temperature of 50° to 55° at night and on dull days, with 10° advance from sun heat, will be sufficient until the buds break, then allow 5° to 10° more by day, husbanding the sun heat by early closing, but losing no opportunity of ventilating freely in the early part of the day, so as to secure sturdy growth and well developed stout foliage. Nevertheless, avoid chills and sudden depressions or fluctuations of temperature, which by alternating tendencies of crippling and provoking growth seriously impair the health of the Vines, and it is seen later in the indifferent doing of the crop.

Ripe Grapes.—Avoid fire heat as much as possible in the Grape room, but the severe weather has necessitated recourse to constant firing, and moisture is apt to be drawn out and deposited on the cooler surfaces of the Grapes. This sometimes results in "spot," both with and without fungal growth, for it is certain that without the moisture the fungoid germs could not develop, and their germinal tubes not enter the tissues of the Grapes until the cuticles were weakened, if not actually ruptured, by the contact and continued presence of the moisture. A little air will prevent such accumulation of water on the berries, and the Grapes will not shrivel unless the evaporation be excessive and the temperature high. An equal temperature of about 45° is most suitable, and the less light the Grapes receive the longer they will retain their colour. As the water in the bottles diminishes it should be replenished with clear soft water, taking care to avoid spilling any or allowing drops to fall on the Grapes.

THE FLOWER GARDEN.

Acacia lophantha.—Young plants of this graceful Acacia will be found of the greatest service for dotting among tuberous Begonias, Verbenas, Violas, and such like, and also for large mixed beds. The seed is very hard, and in order to hasten germination soak it in a bottle or jar of water till it has softened and swollen considerably, when it should be placed singly in 2-inch pots and peaty soil, previously warmed through, and plunged in a brisk bottom heat. Thus treated the seed is not slow in germination, and if the seedlings are given one good shift before they become badly root-bound they will be ready for cooler quarters towards the end of April, and for bedding out early in June.

Antirrhinums and Pentstemons.—These may well receive identical treatment. Both well deserve to be more generally bedded out, especially where they are kept in separate colours. Cuttings may be rooted by hundreds or thousands in the autumn, and kept through the winter in frames, selected stocks of Pentstemons being similarly treated. Seeds should be sown at once, and it will then be possible to have strong plants ready for bedding out in May.

Alpine Auriculas.—A packet of seed obtained from a reliable source should give a number of good varieties, and in order to have strong plants for flowering next season no time should be lost in sowing in well-drained pans filled with sandy loam, given a gentle watering, and allowed to drain two or three hours. The gentle moist heat of a mild hotbed best favours early germination. Sometimes the seedlings appear in the course of three weeks, and with some show of regularity; but more often than not they come up singly, and at long intervals apart, the last showing six or more months from the date of sowing. The strongest may be placed singly in thumb pots. Avoid coddling the young plants. They succeed best under frame culture till they are strong enough for the open.

Cannas.—A packet of seed of Crozy's hybrids will give several superior flowering varieties, but a collection of well established plants of named varieties would prove a feature if grouped in a large bed next summer. They flower finely in the open, and if carefully lifted and repotted will continue flowering in a warm conservatory during the rest of the year. Pot plants after receiving a rest of a few weeks will when started in gentle heat push several suckers, all of which can usually be detached with a few strong roots attached. Potted singly into sizes that comfortably hold the roots and kept in heat, serviceable plants would be ready for the beds early in June. The seed is remarkably hard, and must be softened as advised in the case of *Acacia lophantha* prior to sowing it in pans of warm peaty soil. From small pots the young plants may be shifted into 5-inch, and if kept growing in heat will be quite large enough for the beds in June.

Dahlias.—Newly rooted plants with a single stem and turned out of a 5-inch pot are greatly to be preferred to divided old roots with three or four shoots apiece. Start a few old roots of the best varieties in gentle heat, and abundance of young shoots will soon be produced. When about 4 inches or rather less in length take each off with a thin heel of old bark and place singly in thumb pots, a little sand being placed at the base of each. Set them in frames or hand-lights over a rather dry bottom heat and there will be few failures, removing to cooler quarters before the plants become drawn, and repotting early in larger pots. Dahlia seed germinates readily when sown in pans and placed in a brisk heat. If pricked out thinly in boxes the plants would move very well out of these, or the seedlings may be placed singly in 2½-inch pots.

Grevillea robusta.—This is an elegant, serviceable, but by no means showy plant, and can only be raised from seed. Sow at once in pans of peaty soil. Bury the seed point uppermost, and it may then germinate quickly. Place the seedlings as they become large enough to handle singly into thumb pots, and keep in gentle heat till well established.

Chamaepeuce and Centaurea.—A good stock of strong young plants of these are of the greatest assistance. Sow the seeds at once in pans of sandy soil, plunge in a hotbed, cover with squares of glass, shade heavily, and keep the soil uniformly moist. The seedlings must be carefully lifted out of the pan and placed singly in small pots as they attain size.

THE KITCHEN GARDEN.

Kidney Beans.—There is every likelihood of outdoor vegetables proving scarce this spring, and for this reason, and also because Kidney Beans are always acceptable, as many as possible should be grown under glass. Those grown on the back shelves, fronts, and walls of forcing houses are the quickest to come into full bearing, while those who can afford to devote a well heated house principally to Beans may venture to cover the roof thinly with the new climbing Kidney Bean. The latter, if not unduly crowded and well fed at the roots, will produce fine succulent pods in abundance and in a fairly long succession. Do not sow dwarf varieties in small pots with a view to shifting them into larger ones unless house room is very scarce, as this makes extra work without compensating advantages. Nor when the seed is sown in 8-inch or larger pots ought space to be left for top-dressings, as the latter are rarely taken possession of by the roots. Fill the pots to within 3 inches of the rim with rich loamy soil, sow eight or nine sound seeds on this, and cover with 2 inches of soil. If wanted quickly stand the pots on the hot-water pipes, and if the soil is kept moist the seed will germinate in a few days. Reduce to about six plants in a pot if Ne Plus Ultra, Sion House, or other comparatively small varieties are grown, while three plants of Canadian Wonder are enough for a 9-inch pot. Keep the plants growing in a warm, light position, support them early with Birch or Hazel spray, using stakes and strips of raffia by way of a substitute. They must never become dry at the roots, should have liquid manure freely directly they commence cropping, and the pods ought to be gathered as fast as they are fit. Sow every ten days. Kidney Beans succeed well in boxes, such, for instance, as herrings are largely packed in, and require less water in these than they do in pots.

Cabbage.—In many places only quite the earliest Cabbage finds its way into the dining-room, and if it can be cut at Easter or thereabouts it invariably meets with favour. Severe frosts will have seriously checked the growth of the plants, the more forward probably coming to grief. Directly the state of the ground permits hoe lightly among the plants, and either apply soot freely or nitrate of soda if the soil is somewhat light, sulphate of ammonia on the heavier soils, at the rate in the two last cases of about 2 ozs. per square yard. Cabbages can be forwarded as easily as Cauliflowers, and pay for the trouble. Where possible cover patches of four or five plants with hand-lights, give a little air on bright warm days, and apply liquid manure freely whenever the soil approaches dryness. If there is a scarcity of autumn-raised plants, or if the latter give early signs of bolting, sow a pinch of seed of a quick-hearting variety in a frame or box over a gentle hotbed. Giving the whole of a light up to this purpose answers best, as then by sowing thinly the plants may eventually be transplanted direct to where they are to grow. These early raised plants make very rapid progress on rich ground.

PLANT HOUSES.

Adiantum cuneatum.—Plants from which all the fronds have been removed and display signs of growth should be potted at once. If larger plants are needed do not disturb the old ball beyond the removal of the drainage. By this method the plants quickly establish themselves. The soil should be placed in the house to warm before potting is done, and may consist of three parts of good loam and one of leaf mould, to which a liberal quantity of coarse sand should be added. Press the soil firmly into the pots and water carefully until root action has well commenced. The plants soon commence growth if placed after potting in a temperature of 60°.

Microlepia hirta cristata.—This is a most useful Fern, and makes a splendid basket plant for the conservatory. It is a good Fern for rooms, and is admirable for dinner table decorations. The best method of keeping a good stock is to constantly divide a few plants. For our smallest plants we cut over, at this season of the year, two or three plants and then divide them into small pieces. These are planted thickly in boxes and placed in brisk moist heat. In a very short time the plants commence growing, and are then potted singly in sizes varying from thumbs to 2½ inches. In from 5 to 7 inch pots, for the embellishment of the conservatory, they will be found most useful. This variety does well in the compost advised for *Adiantum cuneatum*.

Pteris serrulata.—This and its many crested forms are amongst the most useful Ferns for furnishing purposes, and are so easily raised that any plants seriously damaged may be thrown away. If the fronds only have been injured the plants may be cut down and started into growth in any house where an intermediate temperature can be maintained. Those that have been confined in small pots may be placed in larger, while seedlings from pans and boxes may be potted singly or in little bunches as opportunity offers.

Pteris tremula.—This is also useful and nearly hardy. Plants are so easily raised from spores and grow so rapidly that once they

are damaged it is best to throw them out. For nearly all furnishing purposes this variety is best when little bunches of seedlings are potted together.

Polystichum proliferum.—This is exceedingly useful in small pots for edging purposes, and will stand in rooms exceedingly well. It is a good plan to plant in a fairly warm place about two well-established specimens. These will produce plantlets freely and even rapidly. These fronds should be pegged down on light sandy soil, and when well rooted the fronds can be cut off and the young plants placed in boxes and grown in any position where a little warmth can be maintained. From the boxes the young plants should be placed in 2½-inch pots, and the second season beautiful plants in 4 and 5-inch pots are produced. Plants well established in small pots may be placed in 4-inch at once, and if put in warmth new fronds will quickly follow. Where a good stock has been wintered in a cool place they can be potted and introduced as required.

THE BEE-KEEPER.

APIARIAN NOTES.

THE WEATHER.

FOR several mornings previous to, and including the 9th, the thermometer stood at zero, continuing at that low temperature during the night, and in some places it was 10° lower. It is when high or low temperatures are protracted that we feel the effects of them most. How the bees will come through the rigorous time remains to be seen, but we may make up our minds that some will have succumbed. I had occasion to move my bees about fifty yards a few days since, and was surprised to find many of them much lighter than I anticipated. The moment a thaw sets in they will be attended to with food, as the temperature at present does not justify the slightest interference with them.

FOUL BROOD.

The question of foul brood being so much before the country at present, the Blantyre No. 1 Bee Club and Vale of Clyde Bee-keepers' Association at a meeting on the 7th inst. resolved, "In order to keep the enemy at bay, as it has been amongst some of its members' hives, to adopt similar hives to those used by some bee-keepers so successfully for so long a period." It was also decided that the Club should have full power to inspect members' apiaries, and overhaul suspicious cases should any symptoms appear. All the members agreed to report to the Secretary from time to time the state and health of their stocks. One of the rules of the Club makes these measures imperative on its members.

It was also unanimously agreed to, in order to prevent any measure becoming law, or in any way inimical to privacy, success, or profit in and from the apiary, that the President of the Board of Trade and member of Parliament be written to, detailing several facts concerning foul brood, and suggesting likely measures which would be agreeable and satisfactory to all concerned.

The Blantyre Bee Club and Vale of Clyde Bee-keepers' Association intend holding a honey show, open to all comers, in October, when prizes will be given for honey pressers, and technical instructions given from time to time on bee-keeping generally. The President of the Association, Mr. Pearson, Rutherglen, gave a handsome donation, with the promise of more towards making the show a success, while silver medals and other prizes have been promised from other sources.—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES—LOOKING FORWARD.

THE severe frost and heavy fall of snow which appear to have been general throughout the country will be the means of keeping the bees snugly clustered in their hives, and if previous instructions have been carried out they will be dry, warm, and ready to take advantage of the fine weather when it comes. Spring-flowering plants are well protected under a warm covering of snow. The Winter Aconite (one of the earliest bee flowers) and the Snowdrops were ready to burst into bloom when the frost came in all its severity. When the frost and snow disappear, and a higher temperature prevails, the merry hum of the busy workers on these and other spring flowers will remind bee-keepers that spring has indeed come. Every day will bring its work, and the negligent bee-keeper will regret the time lost during the quiet winter months in not making preparation for another season.

Now is a good time to have a general stock-taking, as necessary to the cottager with his solitary hive as to the bee-keeper who counts his stocks by the dozen. All spare hives should have a coat of paint; roofs should be examined to see that no leaks occur;

any frames or sections that have been previously used should be cleaned and got in readiness; extractors should be examined to see that all is in working order, and notes made of what is likely to be required for another season. If the stock is to be increased, new hives, frames, sections, and comb foundation must be ordered at once, and there will be no difficulty in obtaining a good discount on all money so expended in the slack season. During the busy time of the year, however, the majority of dealers will only supply goods for net cash, besides often keeping their customers waiting, which is very annoying, but by ordering now everything is ready to hand when required.

As some of my readers may be beginners, and are anxious to invest in their first frame hive, but are in doubt as to the best one to select from those advertised by different dealers. For many years past I have had business relations with a firm of high repute among bee-keepers, and their goods have always been most satisfactory; I refer to Messrs. Geo. Neighbour & Sons, 127, High Holborn, London. I believe they were the first firm in this country to introduce the moveable frame hive, and since that time have always been to the fore with the best hives—from the humble straw skep to the Stewarton and the more elaborate bar-frame hive.

I will describe some of them that have come under my notice. One of the cheapest is the Cottage Frame Hive. It is made of three-quarter-inch boards, and has nine bar-frames and a dummy. These are of the standard size, and fitted with metal self-adjusting ends, which keep them the required distances apart, and rest on a ledge without notches, so that they are not liable to be fixed with propolis. The Sandringham Hive has taken numerous prizes as the best and most complete bar-frame hive. It is of a substantial character, with arrangements for summer and winter use capable of being used for doubling to obtain extracted honey, or of being storified with one or two crates of sections. Another good hive is the Double-cased Hive, with cork dust between the walls, which are nearly 3 inches thick. The floor-board is also packed with cork dust, and is moveable for cleansing purposes. The hive is provided with a dummy and twelve frames of the standard size fitted with metal self-adjusting ends. A double quilt forms the crown, provision being made for feeding.

The bees are thus kept snug and warm. Honey may be obtained from the stock hive by introducing a wide frame filled with sections, protected at the sides with perforated queen-excluder zinc, and a crate of sections may also be worked on the top. Two colonies may be packed in this hive for wintering, but for such a purpose another entrance must be made at the opposite end. This is a more expensive hive. The Buncefield hive is very similar to other frame hives, except that the walls are made of straw neatly bound with cane, and the rustic appearance of straw is always agreeable in a garden. The improved straw skep has a window through which the bees can be seen at work. A crate of sections or a glass may be worked on the top.—AN ENGLISH BEE-KEEPER.

variety that weighed over 1 lb. each, and the cluster over 100 lbs. without the barren end.

Snow Plough (A. B. P.).—You will find the plough depicted in the woodcut (fig. 28) suit admirably. It was made by Mr. Harrison of Knowsley, who wrote when sending a photo of it:—"The 'Knowsley' snow plough is, as will be seen by the illustration, an adjustable machine, and can be readily fixed to suit various widths of road, up to about 12 feet. There is a slight projecting plate of iron fixed to the bottom edge of each side piece, which act as 'shares' in cutting the snow loose from the ground, and a pair of iron 'skates' fixed in the line of draught, and secured to the shafts and front part prevent the possibility of the implement refusing to act when it happens to get into a deep drift. As a further aid to that end the power is applied, that is the horse is hooked on, not at the extreme end as is

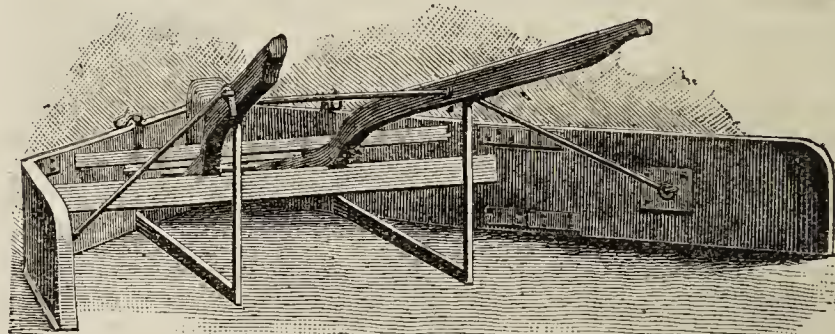


FIG. 28.—THE KNOWSLEY SNOW PLOUGH.

usually done, but a little further back. The draught of the new implement is much lighter than that of the old pattern. The plough is shown here with one side extended and the other drawn in."

Primula japonica (Leicester).—If the seed had been good plants should have been raised under the treatment you adopted for Polyanthus, though the seed takes a little longer to germinate. With new seed we have no difficulty in raising plants. You may sow any time during the present month, placing the pan where the temperature ranges from 55° to 60°.

Crotons (Derby).—The Crotons, unless tall, should not be cut down to the pot; but if they are bare of leaves at the lower part it would be advisable to shorten them, so as to secure growths near the base, otherwise the plants are best left to themselves, and in plenty of light usually branch freely. If cut down the earlier it is done the better, so as to allow time for their making good growth, which, to develop and colour well, requires abundance of heat, moisture, and all the light possible, with thorough cleanliness and judicious feeding.

Petroleum and Peach Trees (T. H. C.).—The branches are killed where the petroleum has been used; even the thick part sent is saturated with the oil. In other respects there is no disease whatever, not even gum, to which the dying of the branches here and there in former years may have been due. The petroleum has simply penetrated the bark down to the wood and destroyed the cells. The young growths to which it has not been applied have both live bark and sound wood, even green growths, but the character is such as to be of no value for bearing, being soft, unripe, and mostly blossomless in character. The petroleum dressing would act more disastrously on such wood than on well ripened, but crude petroleum is dangerous to use on even thoroughly matured wood, and not infrequently fatal, as in your case.

"Insects" in Soil (Henri).—No. 1 is *Jules terrestris*, one of the Snake Millepedes, and feeds on decaying and living animal and vegetable substances. It preys on the roots of various plants, and is very fond of Strawberry fruit and Mangolds. The pests may be greatly reduced in numbers, if not entirely got rid of, by cutting Mangolds in slices and placing them in their haunts, or, preferably, cutting a Mangold in two transversely, scooping out the centre so as to form a cavity, making notches in the cut edge to admit the animals, and placing that side downwards. Examine the traps daily, and destroy the lurking creatures by brushing them into boiling water. No. 2 is not an insect, but a fungus, one of the low saprophytic forms, which may, or may not, be injurious to plants, as that depends upon its development, but, as a rule, such fungi are not prejudicial to plant growth.

Tropæolums (An Old Subscriber).—The varieties you name, as well as many others, do not pass the winter in very good condition unless great care is taken in their preparation and management. Strong well-established plants in pots generally succeed best when placed on a shelf not far from the glass, only keeping the soil sufficiently moist to prevent the leaves flagging. The atmosphere should also be fairly dry, and abundance of air given whenever the weather is favourable. When the plants are employed for bedding the cuttings are rooted in boxes outside, in the same way as Zonal Pelargoniums. The cuttings should be inserted fairly early in soil containing a free admixture of sand, so that they will be well established before it is necessary to house them. This should be done before they become saturated by heavy autumn rains. We find they keep very well in a vinery if placed close to the front ventilators. You may propagate your plants towards the end of the present month in a temperature of 60°. The cuttings will root best if not placed under hand-lights or bell-glasses. As soon as the plants are established they must be removed to cooler quarters, or they will be attacked by aphides. It is possible you have kept your plants a little too close, and the soil too moist as well.



* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Manures (Cross).—Our answer to your question is in the negative as to the use of the material you mention. It is desirable to write a little more fully in asking questions of this nature. Abbreviations are not helpful during moments of pressure.

Banana Fruits Ripening (Banana).—You do not name the variety or species, but if Musa Cavendishi the fruit requires about three months from the first "fingers" being fairly set to their ripening—that is, a plant showing fruit at the end of January will ripen it in May or thereabouts. We have recently seen some "fingers" or pods of this

Culture of *Gazania nivea* (Ross-shire).—The plant comes readily from seed, as you proved last year, in gentle heat. The seedlings should be potted singly as soon as they show the second or true leaves, and the work must be done carefully, as the seedlings are rather impatient of transplantation, and the soil should be moist, so as to avoid having to give water immediately. With shade from bright sun and a gentle warmth they soon become established, and should be hardened and grown in a light airy position in a greenhouse or frame from which frost is excluded. When the weather becomes settled, or early in June, they may be planted out in sandy soil over good drainage, and in a sheltered sunny situation. If kept in pots they should have a compost of sandy loam and peat in equal parts, with about a sixth of charcoal, or broken crocks, and a free admixture of sand, with thorough drainage. Avoid overpotting, keep near the glass in plenty of air, and supply water only when the soil is getting dry, then give enough to show at the drainage. The usual cause of *Gazanias* not thriving is over-watering, too rich soil, and the want of light and air. The plants require greenhouse protection in winter. Wright's Fruit Essay, 1s. 3d., post free, from this office, gives plain instructions on pruning fruit trees and bushes, but the most exhaustive work on fruit culture and pruning is the "Fruit Growers' Guide," published by Messrs. Virtue & Co., City Road, London.

Growing Tomatoes for Profit (Ham Green).—What was most probably the cause of the partial failure is given at the end of your note. The border must have been too rich, and the luxuriant growth was not of a nature to produce fruit freely. The border might not have been too rich had it been made solid by trampling, and the plants allowed more room. If instead of planting twenty or more cross rows, with fourteen plants in each, the gardener had been content with seventeen rows at about 3 feet apart, and not more than twelve plants in each, heavier crops would have been almost certain. Grown thickly the plants smother each other, and many of the fruits that set are frequently hollow and weigh lightly. No fresh soil need be brought in this winter, but we would advise trenching and well mixing the old soil; also that it be made moderately firm prior to planting. If, when the plants are cropping heavily, they give signs of having exhausted the border, apply a mulching of short manure and use liquid manure freely. Nothing will be gained by lowering the hot-water pipes. If they warmed the border, where close on them, to the extent of benefiting the plants, the difference in the crops would have shown this. There was no necessity to make the wall plates perfectly level. The houses could have run with the ground, the side walls being of a uniform height throughout, and the roofs set a little out of the perpendicular or against the slight fall of the ground.

A Good Dressing for Fruit Trees (A. G. S.).—Gas tar is injurious to the bark of all except very old trees, and it often does considerable damage to the roots, as more or less tar water is washed down to them. It is, however, an excellent insecticide, and in mixture with clay has no deleterious effect on the bark. The following is an excellent wash for fruit tree stems and limbs: Take quicklime, freshly burned and light lumps, slake and prepare as for an ordinary whitewash, in an old barrel or tub. Of this take enough at a time to make a pail two-thirds full and the proper consistency for ordinary whitewashing. Now add one part of gas tar, 1 lb. of soft soap, and dissolve 1 lb. of pearl ash in about 1 quart of water, adding to the mixture; then add clay enough to make (with water added) the bucketful (4 gallons) of wash of proper consistence to be applied with a whitewash brush. Apply during mild weather, and while the trees are quite dormant, to the large limbs and trunk down to the ground or roots. The wash will destroy all insects and outgrowths of lichen and moss, and give the trees a bright, clean, healthy appearance. It will also drive out borers or kill them, and moths will not deposit eggs on the trees during the same season, nor will rodent animals girdle trees where the dressing is used. For the looper caterpillars you should use Paris green just before the buds unfold, and again before the blossoms expand, but not by syringing, as that is certain to give an overdose, but by a proper spraying apparatus.

Cockscomb Culture (Inquirer).—Mr. A. Young has given concisely the chief points to be attended to in growing these plants. He very truly says it is of the first importance to obtain a good strain of seed, as some of the strains are worthless; and the next thing is to provide a good manure frame, as the plants will not do at all well in a hot-water heated structure. The seed may be sown the first week in March, and plunged in the frame, which should have a minimum temperature of 70°, and the plants must be kept in this temperature all through their growing season. After the seeds have germinated place the pots near the glass to prevent the young seedlings from becoming drawn. When strong enough transfer the plants to 60-size pots, placing the stems as low as possible, in a compost of two parts turfy loam, one of leaf soil, and a little sand. Keep them plunged close to the glass until they have finished growing. Keep them in these pots until the flower heads appear, and then repot in 48-size pots in the following compost: Two parts turfy loam, one part leaf soil, and one part well-decayed cow manure, with a liberal sprinkling of charcoal and sand. After they have filled these with roots transfer them into 8 or 9-inch pots, which must be well drained. When the plants are well rooted supply them with warm liquid manure until they have attained their full size, when they should be hardened and removed to the greenhouse. Under the treatment described, heads have been grown measuring more than 30 inches from tip to tip, these almost curling over to the rims of the pots, the foliage of great substance, and very dark in colour.

Hibiscus sinensis (Tom B.).—When your plant has commenced growth potting should be done if needed. Turn the plant out of its pot, removing carefully a portion of the old ball; then place it in the same or a larger pot, using a compost of good fibry loam, a little leaf mould, and about a seventh of decayed manure, with sufficient sand to make the whole porous. After potting plunge in bottom heat, and water carefully until the roots are growing freely in the new compost. The plant should be grown as close to the glass as possible to keep the growths dwarf and sturdy, instead of drawing up tall and weak. It is important if you are to flower this plant profusely that you keep it in as light a position as possible to solidify the growth as it is made. When the shoots have attained a length of 6 inches to 1 foot in length they must be tied out to form the base of the specimen. The strongest may be brought lowest so as to give the weaker ones a chance. If any shoots take the lead of the rest pinch them until your specimen is well furnished with shoots all in the same stages of development.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (Reader).—1, *Cyperus nepalensis*; 2, *Anthericum variegatum*; 3, *Woodwardia radicans*. (Sunbeam).—A, *Freesia refracta alba*; B, Possibly *Grevillea robusta*, specimen withered. (T. P.).—1, *Cypripedium villosum*; 2, A variety of *Odontoglossum grande*. (R. D. J.).—Your specimens, through inefficient packing, were quite dead. Read the rules above, and then send again.

TRADE CATALOGUES RECEIVED.

W. Bull, King's Road, Chelsea.—*Catalogue of Seeds*.
A. B. Greenfield, 10, North Street, Wandsworth.—*Seed Catalogue*.
Hender & Sons, Plymouth.—*Seed and Plant Catalogue*.
F. Sander & Co., St. Albans.—*List of New Orchids*.
Louis Van Houtte, Père, Ghent, Belgium.—*General Plant and Seed List*.

COVENT GARDEN MARKET.—FEBRUARY 13TH.

MARKET at a standstill. No buyers owing to the continued frost.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, per half sieve	1	6	4	6	Lemons, case	10	0	15	0
" Nova Scotia, per barrel	10	0	21	0	Peaches, per doz.	0	0	0	0
Grapes, per lb.	1	0	2	0	Plums, half sieve	0	0	0	0
Cobs, per 100 lbs.	20	0	21	0	St. Michael Pines, each	2	0	6	0
					Strawberries per lb.	0	0	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Beans, Kidney, per lb.	0	10	1	0	Mustard and Cress, punnet	0	2	0	0
Beet, Red, dozen	1	0	0	0	Onions, bushel	3	6	4	0
Carrots, bunch	0	3	0	4	Parsley, dozen bunches	2	0	3	0
Caniflowers, dozen	1	6	3	0	Parsnips, dozen	1	0	0	6
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0	4	0
Coleworts, dozen bunches	2	0	4	0	Salsafy, bundle	1	0	1	5
Cucumbers, dozen	2	0	4	0	Seakale, per basket	1	3	1	9
Endive, dozen	1	3	1	6	Scorzonera, bundle	1	6	0	0
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0
Leeks, bunch	0	2	0	0	Spinach, bushel	1	6	3	0
Lettuce, dozen	0	9	1	0	Tomatoes, per lb.	0	2	0	6
Mushrooms, punnet	0	9	1	0	Turnips, bunch	0	3	0	4

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arm Lilies, 12 blooms	4	0	6	0	Poinsettia, dozen blooms	4	0	6	0
Azalea, dozen sprays	0	6	1	0	Pyrethrum, dozen bunches	2	0	4	0
Asparagus Fern, per bunch	2	0	3	0	Roses (indoor), dozen	0	6	1	0
Bonvardias, bunch	0	6	1	0	" Tea, white, dozen	0	6	2	0
Carnations, 12 blooms	1	6	3	0	" Yellow, dozen	2	0	3	0
Chrysanthemums, doz. bchs.	4	0	12	0	" Safrano (English), doz.	1	3	2	0
" doz. blooms	1	0	4	0	" Maréchal Niel, doz.	3	0	6	0
Daffodils, (dbl.), doz. bchs.	16	0	18	0	" (French), yellow, doz. blooms	1	6	2	0
" (single), doz. bchs.	24	0	30	0	" (French), Red, dozen blooms	2	0	2	6
Eucharis, dozen	4	0	6	0	Smilax, per bunch	4	0	6	0
Gardenias, dozen	4	0	6	0	Stephanotis, dozen sprays	4	0	6	0
Geranium, scarlet, doz. bunches	6	0	8	0	Tuberose, 12 blooms	0	4	0	6
Lilac (French) per bunch	6	0	6	6	Violets (English), dozen bunches	1	6	2	6
Lilium longiflorum, per dozen	6	0	9	0	Violets (French), Parme, per bunch	5	0	6	0
Marguerites, 12 bunches	1	6	3	0	Violets (French), Czar, per bunch	2	0	4	0
Maidenhair Fern, dozen bunches	4	0	6	0	Violets (French), Victoria, dozen bunches	4	0	6	0
Orchids, per dozen blooms	1	6	12	0					
Pelargoniums, 12 bunches	6	0	9	0					
Primula (dbl.), doz. sprays	0	6	1	0					

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (golden) dozen	6	0	12	0	Ferns, in variety, dozen	4	0	18	0
Aspidistra, per dozen	18	0	36	0	(small) per hundred	4	0	6	0
Aspidistra, specimen ant	5	0	10	6	Ficus elastica, each	1	0	7	0
Chrysanthemums, per doz.	4	0	8	0	Foliage plants, var., each	2	0	10	0
" large, per doz.	9	0	18	0	Lycopodiums, per dozen	3	0	4	0
Cyclamen, per dozen	9	0	12	0	Marguerite Daisy, dozen	6	0	12	0
Dracaena, various, dozen	12	0	30	0	Myrtles, dozen	6	0	9	0
Dracaena viridis, dozen	9	0	18	0	Palms, in var., each	1	0	15	0
Erica, various, per dozen	9	0	18	0	" (specimens)	21	0	63	0
Euonymus, var., dozen	6	0	18	0	Poinsettia, per dozen	10	0	15	0
Evergreens, in var., per dozen	6	0	24	0	Primulas, per dozen	4	0	6	0
					Solanums, per dozen	10	0	12	0



PROFITABLE LIVE STOCK—HEREFORDS.

No breed of cattle is so generally attractive as the Herefords; with their red coats, white faces, chests, and tail ends, they are most picturesque objects out on pasture, as they are certainly the most attractive class at cattle shows. Regarded from a more practical point of view they are in high favour. The breeder likes them for their robust hardy constitution, their thrifty condition, and early maturity; the butcher, for the smallness of offal, and the excellence of the meat, which always has a ready sale, the marbled beef with its admirable admixture of fat and lean being in high favour with the consumer. They are especially remarkable for the early maturity, which in a great measure has led to the rapid extension of this breed both at home and in the colonies. When it was found that the progeny of carefully selected parents developed this valuable paying property more and more, and that they fattened readily and cheaply, beef and beef only became the breeders' aim, and marvellously successful have they been. It is claimed for them that they are "good doers owing to a contented mind, placid disposition, and gentle manners," which reads like the description of an enthusiastic breeder. It is certain that the gentle kindly disposition of this breed does exercise a beneficial influence on growth and condition.

But the well formed beasts, with their rich mellow flesh of superior flavour, so well and evenly laid on over the whole carcase, would not come so early to maturity nor be so profitable without good management. The store beasts must be kept going well during the winter—condition keeping pace with growth—an easy matter when well-bred healthy beasts have perfect shelter and wholesome nourishing food. When turned out to grass they thrive so well that most of them go direct to the butcher off the pasture, and it is claimed for them that beasts of eighteen and twenty months readily realise £1 per month on their age. It may not perhaps hold good as to price just now, but that does not affect the general question, and there can be no doubt that Herefords rightly hold a high position among our profitable live stock. Their reputation has spread to the ends of the earth, and they have followed it breeders in North and South America and in Australia having eagerly sought after them.

There can be no doubt that agricultural societies have done very much to bring this, as well as all our best breeds, into prominence, and draw the attention of foreign breeders to them. At the summer meetings admirable examples are always to be met with in very considerable numbers, and at the Christmas cattle shows there are always select specimens, serving to illustrate the early maturity of the breed. The favourite age for the fat stock appears to be about twenty-two months, at which age the weight ranges from about 11 to nearly 14 cwt, which shows that they are no mean rivals of the shorthorns in the class under two years, as indeed they are in older classes. Herefords of a ton in weight are often to be seen at our shows now, but we regard such beasts as interesting curiosities, as showing what is possible with the older beasts, and not as examples of profitable management.

Taken for all in all, the kindly, hardy Hereford is one of our very best beef producers. We want more of them in the hands of graziers generally, instead of the mongrel stock which is so unprofitable, and is still so common. Of the whole of the

tenants of an estate of Leicestershire grass farms, not one of them has a single head of well-bred stock, yet some of them have herds of thirty cows. It is true enough that Hereford cows would not answer their purpose as dairy farmers, but the objectionable part—the weak point of their practice—is the purchase of such large numbers of mongrel store beasts, about which there is so frequently an outcry, that after "keeping" them a year they have been sold at a positive loss. Perhaps the less said about such doings the better.

We long for the day when asture will be really cultivated and brought under a system of sustained fertility, and when the stock on it will be well bred, and altogether so well managed as to realise the highest possible profit. In the neighbourhood of Market Harborough considerable herds of Herefords are to be seen on the summer grazing, but they are very seldom to be met with near Leicester or Melton Mowbray.

WORK ON THE HOME FARM.

Since writing our last farm note more snow has fallen, and the cold has continued growing in intensity; 38° of frost, or 6° below zero, has been registered in Leicestershire. There are snow wreaths of considerable depth in the midlands; farther north we hear of sheep buried in snow, and flocks inaccessible to the shepherds owing to deep snow. In such trying weather the full value of a lambing yard is realised, and the flock can be thoroughly cared for. We allow no frozen roots to be used for any sheep, only those which have been placed in well covered heaps and which can be cut up and used unfrozen. The flock can do very well if need be without roots, and there should be no difficulty with the abundant store of food we have. Give the ewes a pint of crushed Oats daily till the frost breaks, or even afterwards if thought necessary, keep abundance of Pea straw in the racks, mix with the Oats chaffed hay and straw to be given in the troughs, and see that these are kept clean. Feed so freely that the sheep are not driven to search for food under the snow, give a change when possible—some Peas or other corn with the Oats, and some silage in the racks.

Suffer no exposure of lambs to cold cutting winds, make an extra fold or two if necessary, keep up the store of food near the folds, and litter with long straw sufficiently often to insure a dry bed. Keep all small flocks near the homestead so that they may have proper attention, and run no risk whatever of loss from exposure. We make a point of seeing that all matters of detail have prompt and timely attention. The shepherd must not be taken from his flock to procure supplies of food of any sort; it is the master's affair to see that nothing is wanting for the flock, not to wait till complaints are made of negligence, and there is suffering and loss among the sheep. For shelter there are many contrivances, one of the best being hurdles thatched thickly with straw for roofs, and for sides to keep off wind two rows of hurdles about a foot apart, the space between being stuffed with litter or straw. Brushwood faggots, too, if bound together closely make a capital wind guard.

METEOROLOGICAL OBSERVATIONS.

OAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1895. February.		Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	3	30.029	29.8	28.6	N.W.	34.0	33.3	19.0	38.2	15.0	—
Monday ..	4	30.194	33.1	31.9	N.E.	33.9	37.6	29.7	71.1	26.2	—
Tuesday ..	5	30.105	22.1	21.6	N.	33.8	31.2	19.4	62.0	7.0	0.010.
Wednesday ..	6	29.852	16.2	15.8	N.	33.6	25.6	12.6	54.2	9.8	—
Thursday ..	7	29.881	16.1	15.8	N.	33.0	25.1	8.4	48.6	5.1	—
Friday ..	8	29.967	15.9	14.8	N.	32.9	24.2	7.3	62.1	6.1	—
Saturday ..	9	30.149	15.2	14.8	N.	32.3	28.7	11.3	47.7	5.0	—
		30.625	21.2	20.5		33.4	29.4	15.4	54.8	10.6	0.010

REMARKS.

3rd.—Overcast all day.

4th.—Fine, with frequent sunshine; a few flakes of snow about 1.30 P.M.

5th.—Bright sunshine all day; cold night.

6th.—Light snow from 7 A.M. to 8.30 A.M.; bright sunshine all day; cold night.

7th.—A few snowflakes in early morning and between 8 and 9 A.M.; sunshine almost all day; cold night.

8th.—Bright sunshine throughout; lunar halo in evening.

9th.—Slight fog till about 10 A.M., faint sunshine after; dense fog from 1 P.M. to 6 P.M. gradually clearing.

The duration of the intense frost is not merely unequalled in any February, but in any month since observations were commenced here in 1858. At present it appears to be remarkably similar to almost the corresponding days of February, 1855.—G. J. SYMONS.

VEITCH'S

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This is a most desirable and perfect strain for exhibition or table use, and though generally grown for a main crop, is also an excellent keeper. Per Ounce, 1/6.

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Price of Seed, 3s. 6d. per Packet, Post Free.

GENUINE ONLY DIRECT FROM—

SUTTON & SONS, READING.



Journal of Horticulture.

THURSDAY, FEBRUARY 21, 1895.

MAKING VINE BORDERS AND PLANTING VINES.

THE soil or compost for new or renovating old Vine borders is best prepared and held in readiness some time prior to use, so that the work may be performed expeditiously when the weather is suitable and the material is in good working order. Some Grape-growers, however, prefer the material fresh, as it then contains a much larger amount of raw nitrogenous matter, which by slow decomposition gradually becomes available as food for the Vines. It then contains the live roots and herbage, and may or may not be alive with visible or microscopic organisms. The turf of most pastures contain the accumulated remains of preceding years' vegetation and dead lowly animals, which implies a store of plant food in the best possible form for another or different plant—to wit, fruit trees, Vines, and potted plants. It also contains the living representatives of the animals and low vegetables that feed on such herbage as compose the sward, which we are pleased to term parasites. These range in size from eelworms and mites that require a microscope for their detection in the egg, larva, pupa or adult stage, up to that of various grubs and insects that are visible to the naked eye. Beetles are amongst the latter, and to this family some of the most malignant Vine pests belong, such as those of the genus *Otiorynchus*.

It is not, however, the present intention to allude particularly to any special form of vegetable or animal organisms which have been detected in old pasture turf, or to draw any distinction between the so-called useful and injurious bodies found therein. Nevertheless, it may be stated that the microscopic forms alone are enough to make anyone wonder how vegetable life is able to exist when so many mouths are ready to devour it, and on which they depend for existence. Indeed, it would be inexplicable, but from the circumstance that the microscope reveals other bodies which feed on the malignant micro-organisms, and maintain a balance in favour of vegetation, also of themselves, for no living creature concerns itself about sentiment, but is bent on nothing but its own existence—feeding, growing, and reproducing. All bodies, visible or microscopic, like nothing

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Each packet contains 10 seeds, Lockie's Perfection, Rollison's Selected Telegraph, Epicurean, and Covent Garden Favourite, 6d. each; or the Collection, 2s., post free; singly, 1d. extra for postage.

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8 Really Good Varieties—Queen of England, white; Blanche Ferry, pink and white; Princess Beatrice, pale pink; Apple Blossom, apple blossom tint; Orange Prince, orange pink; Splendour, rich deep rose; Cardinal, bright cardinal; Countess of Radnor, pale heliotrope, 25 seeds of each, 1s. 3d.

7 Extra Choice and Newer Varieties—Emily Henderson, fine large white; Venus, pale lemon flushed with pink; Mrs. Gladstone delicate pink; Her Majesty, soft rosy pink; Lady Penzance, bright pale rose; Firefly, bright glowing crimson; Monarch, large bronzy purple, 25 seeds of each, 1s. 6d.

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better than to be let alone. Closely grazed turf, therefore, signifies few vegetable and animal parasites, as the treading and browsing of the animals diminishes their number proportionately. An abundance of herbage, on the other hand, implies numerous pests, as these correspond to the herbage and the harbour, or the amount of matter unchanged from the organic state—their food—into inorganic, the essential and sole food of most useful plants, always excepting the Mushroom and other edible fungi, which live like animals—that is, require organic matter for the maintenance of their existence.

Without bothering over these insignificant visible and micro-organisms, which are seldom recognised until housefuls of Cucumbers and Tomatoes succumb to eelworm or similar bodies, and till Vines will not grow satisfactorily, or only flourish for a time to later afford roots for grubs to feed on and foliage to fatten *Otiorynchus* beetles, we may pass on to suitable soils or compost for Vines. The turf of an old pasture may or may not contain all the inorganic and organic substances Vines require for their growth and the perfection of profitable crops. Such staple has proved pre-eminent in practice. What about the failures? Well, we hear nothing about them only under the cover of initials, and there are numbers of these recorded in the correspondents' column of the *Journal of Horticulture*. The turf, therefore, is not satisfactory, nor is it likely, as some turf contains little beyond decayed or decaying vegetable matter, and such decomposes still further into a close mass, impermeable to air, and holding water to soddenness. Then the growths of the Vines become sappy, long-jointed, and large-pithed; the foliage thin, large and flabby, the should-be bunches twirl, twist—do anything but become clusters of Grapes, or if they reach that stage are loose, uneven in berry, swell indifferently, colour anything but black or amber, and many shank. Of course such turf is not made use of by experts, but the majority of Grape growers are not prepared to distinguish at sight between a suitable and an unsuitable turf. They go in for the "fatted calf," the top 3 inches at most of the pasture that is famous for fattening oxen. It grows first-rate beef, and it is thought will grow high-class Grapes. So it will, but it is necessary to adhere to the conditions. The roots of the Vines must have the same substratum, or a similar, as the grass—that is, below the rich surface soil an intermingling with the soil of mineral matter, an abundance of stony particles that contain such elements of plant food as potash, lime, iron, and other essentials, and serve the purpose of keeping the soil open and sweet, while slowly but surely affording supplies of nutrient matter.

Loams from the old and new red sandstones grow the best Grapes. They are red by virtue of the iron they once contained in large per-centages, and they now contain 6 to 10 or more per cent., but a vast proportion of this is locked up in the ferruginous pebbles, and is only given off slowly. The "corn-stones" of the "old red" give of their stores of lime and potash abundant food over long, in fact untold periods, and once the substratum is secured them it is only a question of feeding at the surface—the turf of the pasture—the nitrogenous matter for washing into the soil, and the conversion there into nitrates of the mineral constituents.

Calcareous loams also grow high-quality Grapes, such as the Frontignans and Muscats; but the coarser kinds, such as Alicante and Gros Colman, prefer the alluvial deposits, an admixture of earths, deep and free, with an abundance of both mineral and organic matter. Perhaps the site of sites and a soil of soils for the coarser Grapes is that of an old water-course, which is a mixture of almost everything, and contains the detritus of ages. Frontignans and even Muscats go out of cultivation under such conditions, for they grow too rankly, and the fruit shanks so decisively as to be unprofitable. The Sweetwater Grapes also like these alluvial soils, providing always that the substratum be loose, gravelly, rocky, or sandy, and water does not lodge within 6 feet of the surface.

The Vine, however, is not fastidious about soil, for any good garden soil will grow Grapes, and in many cases better than costly turf, which in most cases has to be "doctored" before even experts dare use it. Any soil, therefore, over a well-drained substratum, and in itself containing at least 75 per cent. of gritty matter, will produce as fine Grapes as need be. The question of crop is a matter of nutrition, and the quality a question of management. It is sheer folly to imagine that Vines require soil different to other fruit trees. A soil that will grow Nuts will grow Grapes. The point is to insure the sweetness of the soil by drainage and enough opening material for aëration. All the other ingredients can be supplied at the surface, such as potassic, phosphatic, and nitrogenic manures. Humus, even, can be imparted by dressings of organic matter. Nature does not bury manure 3 or 4 feet deep in order to attract the roots downwards, and the deep borders of turf and "muck" and rubbish are often mere pits for producing shanked Grapes. Gravelly subsoils, mixed with a moderate amount of fresh stable manure, are far better for Vines to grow in than rich turfy loam devoid of stony matter.

Where the subsoil is unsuitable and the soil itself unsatisfactory there is an excuse for making artificial Vine borders, not otherwise. It is money thrown away in most cases, and the value of the Grapes forestalled for years. But things that cost most are generally valued most, therefore it is useless saying anything about economy and the indulgence in expensive borders. The staple of these is turfy loam—the top 2 or 3 inches of a pasture, rich and friable, and in nature neither very light nor very heavy. It, however, is better rather strong than light. As that is not always procurable, light soil may have a sixth of clay marl, dried and pounded, added to it, and heavy loam, a similar proportion of old mortar rubbish. If the loam is obtained where it thinly overlies limestone, is of medium texture, and contains a large proportion of calcareous gravel, it could not be improved on by any admixture whatever for Frontignan and Muscat Grapes—the finest of all for quality.

An orthodox mixture consists of the following cartloads:—Twelve of good friable turfy loam, two of old mortar rubbish, one of charcoal "nuts," one of wood ashes, half of calcined oyster-shells, 2 cwt. of horn and hoof shavings, and 4 cwt. of crushed bones, thoroughly incorporated. Such mixture will, as it ought, grow anything in the way of Grapes. There are other mixtures equally costly and some far more nasty, such as those containing fish refuse, which, however, make Vine "jump" in their early years, and others contain about a fifth of horse droppings.

In preparing the border, which may be proceeded with as the weather permits, bear in mind that the Vine naturally is a hill-side plant, therefore is impatient of stagnant water. Hence thorough drainage must be provided, and in low sites it is better to elevate the border than waste money in concreting a pit-like excavation. Employ 3 or 4-inch drains, with proper fall and outlet to carry off the superfluous water. Provide a foot of drainage, placing the roughest at the bottom and the finest on the top, preferably finishing with old mortar rubbish to a depth of 3 inches. A width of 6 feet will be sufficient border space in the first instance, and it need not be more than 30 inches deep for the strong growing Vines. Put the materials together compactly, and not when in an unworkable condition. Where the Vine roots are to have the run of both inside and outside borders first confine them to the inside, not making the outside until the Vines are thoroughly established. This, and the additions of border from time to time, will secure to the Vines the full benefit of the loam and its nitrogenous and other readily available food elements in the freshest and best form. It entails a little more labour, but is better in the case of employing rich material, as the Vines are more under control and the food appropriated as it is required.

The proper time for planting Vines is when they are starting into growth, after having been pruned to the required length when at rest and early in the resting season, so as to allow time for the

wounds to heal, and so prevent bleeding. They may be kept in a cool house or pit, and allowed to start into growth naturally, then, when the shoots are an inch or two in length, they should be turned out of the pots, have the soil entirely removed or washed away, spreading the roots out carefully after disentangling them, pressing the soil firmly about the roots, not cover them more than 2 or 3 inches deep, and keeping the neck or collar somewhat high, as however firm the soil may be it will settle somewhat, and the keeping high affords facilities for top-dressing. This will encourage roots from the collar, and by judicious mulching and top-dressing they may be induced to spread on the surface of the border and appropriate any food that may be supplied in an available form. A moderate watering with tepid water will settle the soil about the roots, and with judicious treatment they will start rooting afresh, and push growths correspondingly.—G. ABBEY.



CYMBIDIUM EBURNEO-LOWIANUM SUPERBUM.

ONE of the most interesting Orchids shown at the Drill Hall, Westminster, on the 12th inst., was this Cymbidium, which is admirably portrayed in the woodcut (fig. 29). It was staged by Messrs. J. Veitch and Sons, Chelsea, and is a hybrid between eburneo and Lowianum, and the presence of both parents is readily perceptible. The plant exhibited had one spike carrying four handsome flowers, the colour of which was creamy white, the lip being heavily marked velvety crimson. This Orchid is very rare, and, as has been said, interesting. A first-class certificate was adjudged.

CALANTHE VEITCHI.

MR. FRIEND, Rooksnest, Godstone, writes:—"I am forwarding you a specimen of Calanthe Veitchi as grown here, and shall be glad to furnish particulars of the culture followed as soon as my health—which has been bad of late—will permit me to do so."

[We greatly regret to hear of Mr. Friend's indisposition, and trust that he will soon recover his health. The specimen of C. Veitchi was a magnificent one, the flower spike measuring 5 feet 5 inches in length, and the pseudo-bulb 1 foot in length with a circumference, 1 inch from the base, of 7 inches. We shall be glad to publish Mr. Friend's notes, which will be read with much interest by many of our readers.]

TRICHOSMA SUAVIS.

ALTHOUGH not a showy Orchid this is well worth growing on account of its distinct appearance. The plant grows from 5 to 8 inches in height, and consists of a cluster of stems, each bearing a couple of broad leaves. The short spikes issue from between these, and each carries five or six flowers about 1½ inch in diameter. The sepals and petals are creamy white; the lip is also white, crested, the centre lobe yellow, with short diverging lines of crimson. These, as the specific name implies, are sweetly scented. T. suavis thrives well with the warmest section of Odontoglossums, and if well grown seldom fails to flower. The pots must be clean and well drained, and the compost rough and open, good turfy peat with a little chopped sphagnum and potsherds suiting it well. Abundance of water must be given at all times, as the plants have no pseudo-bulbs to sustain them through a period of drought. It is the only species in the genus, and was introduced from the Khasia Mountains in 1840. It flowers at various times, but usually during the winter and early spring.

ODONTOGLOSSUM PARDINUM.

The habit of this species is different from the majority of the genus, the pseudo-bulbs being large, ovate, light green, and bearing

several leaves of a similar colour. From the appearance of the flower spikes on newly imported plants this would be a truly grand kind if happy under cultivation, as these are sometimes nearly half an inch in diameter. The best plants I have seen were growing in wood baskets suspended from the roof with the coolest section of the genus, and this appears to be the most suitable treatment for it. The compost must be very open, as the roots are larger and not so persistent as those of some other kinds. The spikes on the plants referred to were from 2 to 2½ feet in length, and bore many of the pretty spotted flowers; individually these were 4 inches across, light yellow or straw-coloured profusely spotted with crimson. O. pardinum is a native of Peru, and first flowered at Rendlesham Hall, Woodbridge, in 1878.

WATERING ORCHIDS.

At this season when many plants are beginning to grow, and others are still in a dormant condition, a good deal more care and judgment is necessary in this operation than when all are growing freely. Although mischief may occasionally be caused by a too limited supply of water, yet the greater danger lies in the opposite direction, especially among the pseudo-bulbous kinds.

If growers would only keep these well watered in the autumn when they need it to supply the nutriment for the swelling pseudo-bulbs, and wait until the new growths begin to root before increasing the supply very much, it would be a material advantage, causing less shrivelling during the winter, and saving many young growths from an untimely death in the spring. I am referring more especially to such as Cattleyas and Dendrobiums, and not to those that, like Cymbidiums and others, require a good deal of moisture all through the winter and have foliage of a harder texture, less likely to damp. These latter and Cypripediums require probably more water than any others at this season, healthy



FIG. 29.—CYMBIDIUM EBURNEO-LOWIANUM SUPERBUM.

plants with the pots full of roots needing attention daily. Disa grandiflora, too, if growing freely, must never be allowed to become dry at the roots, and is better for frequent sprinklings. Cattleya Mendelli, C. intermedia, Laelia grandis, L. purpurata, L. superbis, and others advancing into flower, must have an increased supply, the appearance of the roots being a safe guide to the cultivator.

When these are seen by the fresh growing points to be actively searching for moisture, it must be provided in adequate quantities to meet their demands, but when they are, on the contrary, quite dormant, the less water they have the better as long as the bulbs keep plump. Many of the distichous-leaved section, as Vandas, Phalaenopsis, and Saccolabiums, are still quiescent, and must be kept as dry as possible without killing the sphagnum moss about them. Others of this section, as for instance Angræcum sesquipedale and Vanda cœrulea, seem never entirely at rest, and the treatment must be varied accordingly.

Many other instances of different species in the same genus requiring varying treatment may be mentioned, but they can be seen by intelligent cultivators for themselves if they study their

plants, and experience gained this way will be much more useful than that imparted through the medium of these pages. The plants are the best teachers, and it is by observation of their peculiarities that proficiency in Orchid growing is to be gained. It must not be forgotten either that we are to a great extent the slaves of circumstances, and what is right in a properly heated, well appointed Orchid house might prove fatal in a badly arranged, ill-adapted structure. This being so, each grower must shape a course for himself, carefully noting the experience of others, but not accepting this in too literal a sense.

Have all water used of an equal or higher temperature than that of the house in which the plants are growing, and be careful that no water lodges in the growths or sheaths of Cattleyas and others advancing into flower.—H. R. R.

THE PROSPECTS OF GARDENERS.

Now that the strong hand of frost and snow holds our native soil in its flint-like grasp it is well for gardeners as a body to look as far as human foresight can, to the requirements and probabilities of the future. Those among them of a thoughtful turn of mind who watch the slow revolutionary times through which we are now passing, must ponder deeply on the ultimate basis on which gardening as a profession will stand. Nay, alas! there are those who at the present moment have almost reached the point of despair, as day after day, week after week drags by without bringing for them the longed for situation. Yet while good men and true are patiently waiting for chances, which in many cases will never come, shoals of lads with the vigour and enthusiasm of youth are rushing into the same calling, which to only an extremely small percentage of them can ever bring adequate reward.

To many this may seem far too dismal a picture to paint of the prospects of a body of men whose lines, to those who only look on the surface, seem to be cast in truly pleasant places. There can be no doubt that it is this prospect of a pleasant career that induces so many in early life to join the ranks and compete for the prizes of the craft. The conditions are, however, very different now to what they were a quarter of a century ago, that those who have a fair share of ambition ought to consider the matter thoroughly before they take up gardening as a means of livelihood in which ability is likely to meet with a fair reward.

My own idea of the matter is that gardening must in the future be looked on in a totally different light from that in which it has been the custom to regard it in the past. To the great number who have at various times taken to gardening as an employment which offered the readiest means of raising them slightly above the drudgery of the lives of rural labourers around them, this changed condition of affairs will not appear to be a particularly serious matter, and the prospects for such are even now fairly good, because the aggregate wealth of the country steadily increases, and with it the number of individuals who can afford to keep one, two, or three gardeners. These establishments in many instances offer comfortable situations for men who have no great amount of ambition, and who are by Nature intended to be led rather than to lead. Those who belong to this category have no great cause for alarm at the prospects before them, as Nature has endowed them with a capacity for leading peaceful, happy lives, doing useful work without accomplishing any great results.

I have now a few remarks to make on a totally different class of men. I refer to those who take up gardening as a calling, who in their youthful days have regarded with profound respect the chief in some large and well-ordered garden. To win such a position themselves has seemed to be a crowning reward for strenuous endeavours and the realisation of their highest hopes. Youths of this calibre have a definite object in view, and with a fair share of the fortune of work will win. What I maintain, however, is that at the present time the percentage of gardeners who have the hopes, aspirations, and abilities enumerated above, are very largely in excess of the positions to be filled which would satisfy them, and the tendency of the present time goes to show that this disproportion will be much more pronounced in the future—though in truth it is bad enough now—unless a little more shrewdness is shown by parents and youths in the choice of a calling. The mere fact that our ancient calling at one time offered sufficiently lucrative posts for the sons of the comparatively well to do, often induces parents who have no definite knowledge of the present state of affairs, to start their sons on a race which is exceedingly like the proverbial one of pursuing a "phantom ship."

It may be that these lines will meet the eye of some who are at the present time seriously considering the knotty problem, "What shall we do with our boys?" Then, perchance, some

inward thought begotten of sentimentalism will appear like an inspiration, Make gardeners of them? To this I say yes. All men should be such, but to take up gardening as a living what a different matter! To me it seems that that pithy but famous piece of advice which "Punch" once volunteered comes again fresh to the rescue, "Don't."—A LOVER OF GARDENING.

TIMELY SUGGESTIONS.

GARDENERS generally are in rather a happy frame of mind when unpacking their seed hamper, pocketing a new knife and donning a new apron. Yet it is a feeling which soon gives way to one of responsibility and anxiety. The leader (page 109) setting forth the virtues of patience has forestalled some thoughts on this subject. Most readers will readily admit that patience is as good for gardeners as it is reputed to be for the gout. Anyway, we need all we have of it, and doubtless, under some conditions, a little more. Not less can we endorse the wisdom of being early birds, and it behoves us to go for that worm, whether it takes the form of the earliest dish of Peas, new Potatoes, or other things so warmly welcomed after the monotony of the winter season. Yes, that worm is good value; and whether or not the early bird crows over his neighbours, the catch is soon published in the locality, and the go-ahead man is held up as an example to his easier-going brother.

Growers for market recognise the importance of being first in the field, with the reward of realising fancy prices for their smartness. In private establishments it is worth some effort, in spite of risk, to obtain a few early dishes, especially in a season like this we are passing through, with scarcity at present and dearth in prospect. Small patches, a few short drills sown at the earliest opportunity, to be followed at intervals until the main crops are sown, may be more or less speculative, but often result in little gains on time, which serve as peace offerings to the kitchen, and are duly appreciated. The main crops obviously claim most attention, and the chief anxiety is to get them in under the most favourable conditions. The exhaustive thrashing out of the Onion maggot subject last year, with the unanimous verdict of the benefits to be derived from early sowing, appear to be shelved by the weather for this season, but doubtless raising in heat is being extensively practised.

In localities favoured by open, generous, free-working soils, the importance of seizing on the first opportunity for the sowing of some particular crop is not so paramount as in those places where the reverse conditions obtain. With the latter an ungenial spring may yield but one opportunity as to a dozen in the former. Although "All things come to those who wait," even good weather, a great deal of vexation comes to those who, while waiting, know that an opportunity has been missed. The good day for a certain job may be a better one to-morrow, but that to-morrow may be deferred for weeks, thus taking far too large a slice out of what may prove to be but an indifferent season of growth.

Caprice of weather sets at defiance the wisest calenderial directions. It is a game of chance, and often those who court criticism by apparent undue haste succeed beyond even their own expectation. Later sowings may be, often are, caught by a bad spell in a critical stage that earlier-sown, stronger plants, are able to withstand. Yet the question of early sowing this season is to some extent nullified by the prevailing Arctic weather, which, whilst not only locking our seeds out of the ground may, by accumulating arrears of work, cause further delay when changed conditions present the opportunity, unless deliberate thought now leads to prompt action then.

What to sow? is a question annually raised when noting the numerous additions yearly increasing in our seed lists. There is a temptation to all in novelties which not a few, by various reasons, have to resist. New things come to us with exceedingly good characters; but we, prompted by prudence, can only take them on trial. Many are precluded by questions of space, time, or means from entering with a free hand into culture which is, to some extent, experimental; hence watch those who can afford to do so, and await their verdict in the gardening press. So a good thing is heard of again, and disappointment by the reverse is avoided by those who feel they must—

"Be not the first by whom the new are tried,
Nor yet the last to lay the old aside."

I have observed that employers sufficiently interested to scan the seed catalogues are often attracted by a name. What's in a name? A good deal to some, for some names are attractive, and others there are which may be termed repellant. Amongst the former may be noted a novelty for this season, *Saintpaulia*

ionantha, and I venture to predict that whatever its merits may be as a stove plant—and they may be all that is said for it—it will for the above reason be in considerable demand. But whatever results obtain from inclination or ability to test the practically untried, we neither wish nor can afford to despise the old friends, often tried and seldom found wanting. Many of these have, too, approached so near perfection as to leave but little to be desired. Some of these there are in the vegetable department which have held a prominent position for years, and by merit may continue to do so for years to come. In the trial of some so-called new things one recognises now and again an old friend with a new face, across which is written pride or perfection, marking but the smallest, if any, advance. The vendors' names attached are at least a guarantee of quality with the incentive of keeping the stocks worthy of the name they bear. Progression is a feature of our plethoric seed lists, and time, which tries all things, promotes the survival of the fittest.

How to sow? The best methods to insure success is a matter of direct concern to ourselves, and of considerable import to the seedsman. There is, I think, but little to complain of in the quality of seeds obtained from firms of repute. The bulk of those complaints which do arise are the effects of a cause which, if sought for, may be found in methods of sowing and culture during the most critical period of vegetable life, or indeed of all life—viz., infancy. The fallacy of asserting that seeds are bad because "they do not come up" might frequently be demonstrated by the aid of a magnifying lens. They have, like some other infants, been ushered into a world of uncongenial surroundings, and as quickly perished.

There are, doubtless, gradations of vitality in seeds, traceable to age, indifferent harvesting, or even hereditary influences. Good nursing is required by delicate kinds. Investigation will often reveal the fact that germination has taken place, hence badness is out of the question. Seeds that are held over for some time previous to sowing should be stored in suitable quarters. Well ripened seeds are those in which germination is arrested until set in motion by atmospheric influence; and noting how quickly those influences excite the suspended functions, it is obvious that fluctuating temperature accompanied by varying degrees of moisture must have some bearing on the matter. This may be more or less remote. Yet, when seeds are held over for some time, perhaps for a season, Nature asserts her rights by embracing such opportunities as a damp seed cupboard affords in causing some excitement prejudicial to dormant life. True, this is but a side light on the matter, and may be a dim one to boot.

The question is, how to sow? and this with delicate plants raised under glass is how to germinate successfully, for here, though under direct control, the largest percentage of failures are recorded. It would be well if those heads who have to relegate this work to other hands could illustrate the delicate organism of the infant plant developing from the seed; to show how by inattention or carelessness failure ensues. Younger hands may carry out the work to the letter by rapping the pot or pan to evoke the signs of drought, but the method invokes not the spirit of success in the germination of small seeds. Spring days are often trying days to plant life under glass. Seeds in a right condition of moisture when the water-pot makes its morning call may by a burst of sunshine be parched at noon, and perished by the next day; hence frequent inspection is necessary. Here, too, soil should be regarded more as the medium for germination than as a support to the plant, which can be given when transplanting—pricking off—takes place. A free, open mixture, such as is afforded by a liberal use of leaf mould and coarse sand, is preferable to more tenacious soil, which the fine rose waterings tend to cake. Warmth, moisture, and darkness promote quick germination; with this accomplished, prompt removal to light airy quarters before attenuation sets in is of vital importance. Long legs are not conducive of sound constitutions, and overcrowding causes wholesale damping.

Turning to those plants, which with our best efforts are at the mercy of the weather, overcrowding from too liberal sowing is the prevailing evil. We sow 100 seeds to pull up, may be, ninety. A margin must perforce be allowed, but that margin is, as a rule, far too broad. Timely thinning is the remedy, but the operation is tedious, and however carefully and promptly done we rarely see such results as are obtained from a stray seed, forming a lusty plant out of bounds. Thinning should be regarded as a necessary evil, and the less of it required the better. Deep sowing of Peas as a protection from frost finds favour with some. My experience, obtained by means of a negligent workman, points to the contrary. Peas germinating practically on the surface will remain uninjured by severe frost, whilst those buried deeper decay. All phases of the subject point the moral that "As we sow so shall we reap."

—E. K., *Dublin*.

THE FLORISTS' TULIP.

[By JAMES W. BENTLEY, Hon. Secretary to the Royal National Tulip Society.]

CHAPTER IV.—CONCLUDED.

(Continued from page 114.)

IN concluding this portion of the subject, a few words regarding insect pests are necessary, as I have hitherto written little or nothing about them. Fortunately, the Tulip grower has not, like the Auricula and Carnation grower, to be constantly at war with green fly. The foliage of the Tulip may be said to be entirely free from the attacks of this troublesome nuisance. I have known green fly enter Tulip cabinets and feed upon the juices of the bulbs during their summer rest, a few having probably got amongst the bulbs whilst drying. Their amazing fecundity soon caused them to be numbered by thousands. In a few weeks the exposed portions of every bulb were thickly covered, and much trouble was experienced in getting rid of the pest. The bulbs should be examined from time to time in the cabinet, and any green fly destroyed. Wireworms in the soil have been alluded to; they should be carefully looked for and destroyed when the bed is being made. If evidences of their presence are noticed after the plants have come up they should be carefully searched for in the soil. Pieces of Potato or Turnip buried a few inches deep in likely places and examined daily will act as traps for them.

There is a kind of slug called locally "leather-back," which is sometimes very troublesome; it is small, of a dark grey colour, and yellowish underneath. It attacks the Tulips when very young, and will eat the young shoot right through at the surface of the ground, or even a little below the top of the soil. A friend of mine suffered very much a few years ago from these slugs. He found his Tulips in many cases begin to die as they were coming through the soil, others came up damaged and sickly, and very few were in their normal health. Upon searching for the cause he found that all the covering soil was infested with these slugs, and that they were the cause of the mischief. Slices of Potato and Turnip laid on, and just under the surface of the soil, lured them from the Tulips, and he had the melancholy satisfaction of catching some thousands of them in this manner. From the small size of most of the slugs it seemed probable that they had been introduced into the bed among the covering soil in the form of eggs. What gave corroboration to this idea was the fact that the soil had been stored during the summer against an old garden wall made of loose stones, and the inference was that the eggs had been deposited among the soil whilst it lay against the old wall, which was a likely retreat for the slugs. Three-quarters of the plants were destroyed, with much consequent loss amongst the bulbs as well, which were in many cases also found eaten. A visitation of this kind is happily unusual, but as it is so serious in its consequences it is wise to have its possible occurrence in memory.

CHAPTER V.

ON EXHIBITING AND GROWING FOR EXHIBITION.

Although growing for exhibition and exhibiting may be considered by some persons to be rather mercenary, and altogether inferior to growing for the pure love of the flower, it is nevertheless true that but for the exhibitions of the Royal National Tulip Society and two or three smaller local societies the Tulip would have been almost extinct years ago as a florist's flower, so one cannot, no matter how one regards exhibiting, pass it by without mention.

As far as growing for exhibition is concerned, the chief objects of desire are to have the best exhibition varieties well grown, in the best of their bloom, on the day when the show is held. As the Tulip is a garden flower which can neither be retarded nor forced in its blooming time, it is, of course, a matter of impossibility to insure this desired result. Up to recently there have been only three Tulip shows held in this country for many years. They are all in the North of England, and the dates fixed were almost invariably too late for Midland and Southern growers. Last year, however, the Royal National Tulip Society, in addition to its chief exhibition held at York, tried the experiment of a show in London, in connection with one of the Royal Horticultural Society's exhibitions, held at a date which would suit early growers. The result was so encouraging to the promoters that the show will be held again this year in the hope that the culture of the Tulip will be stimulated in the South, and that the few growers already established there will be added to considerably. Facilities for exhibiting collections of florists' Tulips are also afforded in May and June at other meetings of the Royal Horticultural Society. I mention all these exhibitions to make it clear that, although one can have but little control over the period of blooming, yet the opportunities for showing are now so numerous that every grower

can, if he wishes, stage his blooms in good condition at one or more of them.

The best varieties for growing for exhibition are those kinds which combine constancy of marking with a good constitution. I advise the beginner to commence with the under-mentioned varieties which are fairly abundant, and to add rarer and more delicate sorts by degrees.

<i>Feathered Roses.</i>	<i>Feathered Byblæmens.</i>	<i>Feathered Bizarres.</i>
Modesty (Walker)	Bessie (Hepworth)	Masterpiece (Slater)
Mabel (Martin)	Adonis (Head'ey)	Sir Joseph Paxton (Wilson)
Heroine (Dutch)	Violet Amiable (Haigh)	Sulphur (Birtwistle)
Alice (Dymock)		
Comte de Vergennes (Dutch)		
<i>Flamed Roses.</i>	<i>Flamed Byblæmens.</i>	<i>Flamed Bizarres.</i>
Annie McGregor (Martin)	Adonis (Headley)	Sir Joseph Paxton (Wilson)
Mabel (Martin)	Talisman (Hardy)	Dr. Hardy (Storer)
Aglaia (Lawrence)	Chancellor (Battersby)	Masterpiece (Slater)
Triomphe Royale or Heroine (Dutch)	Duchess of Sutherland (Walker)	Sulphur (Birtwistle)
<i>Rose Breeders.</i>	<i>Byblæmen Breeders.</i>	<i>Bizarre Breeders.</i>
Annie M'Gregor (Martin)	Adonis (Headley)	Dr. Hardy (Storer)
Mabel (Martin)	Talisman (Hardy)	Sir Joseph Paxton (Wilson)
Mrs. Barlow (Hepworth)	George Hardwick (Hardwick)	Sulphur (Birtwistle)
Industry (Lea)	Queen of the May (Hepworth)	William Lea (Storer)
Queen of England (Parker)		Richard Yates (Lea)

Selves are little grown now. The best are Cygnet and White Nancy, whites; Buttercup and Goldfinch, yellows.

There are many other varieties that I should have liked to have included in this list, but as they are scarce I have omitted them. It does not follow that because a sort is scarce that it is good, and the list includes those kinds that form the backbone of almost every grower's collection. When opportunity offers the following scarcer kinds may be added. It is, of course, all-important to secure the best strains in both this and the preceding list.

Feathered Roses.—Mrs. Lea (Lea), Mrs. Thurstan (Thurstan), Industry (Lea), Rachel (Martin).

Feathered Byblæmens.—King of the Universe (Dymock), Elizabeth Pegg (Camp), Queen of the May (Hepworth), Bertha (Hiley), Mrs. Cooper (Boardman).

Feathered Bizarres.—Lord Frederick Cavendish (Hardwick), William Wilson (Hardy), Typo (Dymock), Commander (Marsden).

Flamed Roses.—Circe (Headley), Mary Jackson (Knowles).

Flamed Byblæmens.—Queen of the May (Hepworth), Salvator Rosa (Brown), Friar Tuck (Slater).

Flamed Bizarres.—Dr. Hutcheon (Storer), Lord Stanley (Storer), Ajax (Hardy), Lord Sidney (Haynes).

Rose Breeders.—Rose Hill (Oldfield), Tryphena (Thurstan), Dawn (Horner).

Byblæmen Breeders.—Glory of Stakehill (Ashmole), Alice Grey (Walker), William Park nson (Hepworth), Bridesmaid.

Bizarre Breeders.—Goldfinder (Hepworth), Lord Stanley (Storer).

The exhibiting grower will find plenty to do when the buds on his beds begin to "show colour," as the change from the green state is termed. All the buds of rectified flowers showing signs on the outside of refined marking should be at once carefully secured from the chance of injury from wet or bruising. This is easily done by means of neat-squared garden sticks about 3 feet 6 inches long, which are pushed into the soil near to the plants to be protected, care being taken not to injure any bulb in so doing. The stem of the plant is then fastened to the stick by means of 10-inch lengths of lead wire about one-eighth of an inch in diameter in the desired way. This is very easily done, as the lead wire is readily bent, and yet is sufficiently rigid when bent to keep the flower in the required position. One end of the wire is bent round the stem, but not pinching it, just under the flower, and the other end is wrapped round the stick several times, and there will be a straight length of wire between flower and stick sufficient for the former to expand freely without rubbing against the latter. Care must also be taken that the flower does not rub against any of its neighbours, or against any of the posts supporting the glass over the bed. If grown under glass the flower will not need much more attention, as the protection afforded by it, and the shading described in the previous chapter, will in most cases be ample. At the same time, it is well to have some shading boards for special cases. These boards are made of wood about half inch in thickness and 8 inches square, with a square hole near one edge through which the stick passes. They can be adjusted at any height over the flower by sliding up or down the stick, and are secured in the desired position by means of a small wedge or other simple device. These boards are useful in case the flower is in a position where drip is feared, or as an extra shade in very hot weather. If the Tulips are grown without glass in the old fashion these boards are quite indispensable, and have to be used in such numbers that the beds seem more devoted to timber than Tulips, and the effect of the display is utterly marred.

Some growers also take much pains, with a view to improve the faulty shapes of many of their growing flowers. They insert into the flower a kind of ring made of stout paper or stiff wood shaving, which prevents it from closing; then by winding carefully round some soft tying material, such as fine knitting wool, on the outside, they compel the petals to clip up close together into a cup. By so doing they contend that the petals will keep the close cup-like shape in which they have been confined when they are cut and freed from their bonds; or that, at all events, a great improvement in that direction is effected. I must admit that I never could see any material advantage gained by this troublesome process. The disadvantages are, however, very numerous. The labour is great, and notwithstanding every care, petals are often torn and bruised, neighbouring flowers damaged or broken off, and the delicate bloom observable on the untouched flower is gone. At the same time I own that the ring or "crinoline," as it is often termed, is useful occasionally on the bed, as, for instance, in the case of a flower that requires bleaching at the base. When the weather is dull and cold, and the flowers remain closed all day, such a flower cannot receive the bleaching influence of the light unless it is kept forcibly open by some such means.

If the weather at blooming time is very hot, or if the bloom is rather too forward, it will be an advantage to cut any flowers that would otherwise be over, as they can be preserved for a considerable time in water. They must be cut with long stems, be perfectly dry when cut, and should be kept in a cold, airy, dry situation. A dry, cool, well ventilated cellar lighted in a subdued manner from the north is an ideal place. The flowers should each have a separate bottle, and nothing but the stem in the water should be at all wet, or they soon begin to decay; the water in the bottles should be changed every two or three days, and the stems should be shortened a little by a clean cut with a sharp knife every day. Tulip stems must always be cut and never broken; when broken, and then put into water they frequently begin to split, and I have known the splitting spread and extend nearly up to the flower. A pinch of powdered charcoal may be added to the water with advantage. By careful attention to these details flowers cut reasonably young may be kept ten to fourteen days. I have heard that a little carbonate of soda is a fine addition to the water, and one grower having got rather mellow and consequently confidential revealed to me that a little dash of whiskey had quite as an invigorating effect on the flowers as on their owners, but these are matters of report merely, and not of my own knowledge.

It is an advantage sometimes, and especially in cold, ungenial weather, to cut, two or three days before the show, any flowers which are too young to get to perfection, in time, on the bed, and place them in a warmer climate, such as an ordinary greenhouse. In case this accommodation cannot be had, a warm living room with abundance of light is no bad substitute. Treated in this manner they make astonishing progress, and many are the stories told among the growers of success insured by such means as these.

When cutting flowers for exhibition, only those having reasonable claims to excellence should be gathered. It is a great mistake to encumber oneself with flowers which have no chance of doing their owner credit, and yet take up his time and attention. The flowers should all be cut the day previous to the show, placed in bottles in their respective classes, and carefully examined, those having fatal defects, such as being "quartered," having too many or too few petals or dead at the top of the petals being rejected, and those which are the best in each class noted in some way. Then the flowers destined for the show should be packed for the journey, and here the best use of the "crinoline" comes in, and is of great advantage.

PEAT MOSS LITTER.

I NOTICED "S. D.'s" remarks on page 122 respecting his experience with peat moss after coming from the stables. His letter was certainly rather alarming to those who, like myself, have not yet seen the effects of it on crops generally. I have a quantity of it on the ground, and some dug in ready for the coming season's crops. It is too late to alter some of it now. I hope there may be something different in its quality from that alluded to, and that it will not have the same unfortunate effect on our crops. I think the material must vary, as I have failed, like many others, in growing Mushrooms in it, whereas we always had plenty when straw was used with the manure. I should be much obliged if "S. D." would forward a few more particulars through your columns as to his treatment of it for growing Mushrooms. I have collected it as it came from the stables until we had enough for a bed, and made it quite firm. It heated freely at first, and the spawn ran well, but the heat was soon gone and the spawn died away. I have tried three or four beds in the same house, which is well heated, but they have all failed. I know many persons are trying to grow Mushrooms in the material, so that any hints from those who have been successful with it will be welcomed.—R. C. W.



WEATHER IN LONDON.—At the time of going to press the weather is considerably milder and shows signs of relaxation, as the thermometer in the southern suburbs this morning reads 30°. As the result of the rising temperature there is a marked improvement in the condition of the Thames. The ice floes have visibly diminished in both size and number, the stream during flow tide being now practically free. The gulls which have recently hovered over the river in quest of food are greatly reduced in numbers, showing signs that they can now feed elsewhere. Notwithstanding the tendency to thaw recent borings of ice on the Serpentine in Hyde Park showed a thickness of 7½ inches, while that of the Long Water was from 8 to 10 inches, the Round Pond 9½ to 9¾, and St. James' Park 8¾ to 9 inches.

— **THE WEATHER IN THE NORTH.**—Winter shows little sign of relaxing. Again in the middle of last week our Highland lines have been blocked by snow. The frost has been rather less severe than in the previous week, ranging from 8° to 18° on Tuesday morning. From Saturday till Monday slight thawing took place for an hour or two each day, but from little else than sun heat. Tuesday morning was very cold with a thick frosty haze.—B. D., *S. Perthshire*.

— **THE KEW GUILD.**—The annual general meeting of this Association will be held in the Garden Library at Kew on Thursday evening, February 28th, at eight o'clock. Members who are unable to attend are requested to send any contributions for the Journal, to be published in May, or any suggestions they may desire to make with respect to the Guild, to the Secretary, Mr. J. Aikman, Whitestile Road, Brentford.

— **A NOTE OF WARNING.**—A timely caution comes from Messrs. Sutton of Reading, pointing out that as soon as the present prolonged frost breaks there will be a natural desire on the part of most gardeners to catch up the delayed outdoor work; but, as Messrs. Sutton say, in the matter of sowing it is better to be a fortnight behind the usual time than a week ahead. There is more wisdom in patient waiting for suitable conditions of soil and temperature than in undue haste, and the important essentials of light and warmth of soil should be considered rather than any fixed week of the month for sowing. Unfortunately it takes more than a few fine spring days to warm the ground, and when germination is accompanied by too low a temperature the seedlings and ultimate plants necessarily lack vigour.

— **ENGLISH ARBORICULTURAL SOCIETY.**—At present the English Arboricultural Society is more or less limited to the North of England. There is every prospect, however, of its extension southwards in the future, both on account of the attention now being given to forestry, and because the Society is making efforts to increase its membership by going further afield. The Transactions of the Society (vol. iii., part iv.) should materially assist towards this end, for the instructive papers contained therein appeal to all foresters. The information which Prof. Somerville has brought together and published forms a valuable summary of the present position of knowledge in regard to the Larch disease, and shows the various conditions and cultural methods which hold out some prospect of securing comparative immunity from attack.

— **STORING SEED POTATOES.**—Truly "A. D." (page 143) is an ingenious as well as a bold man. Has he no fear of wife or housemaid before his eyes? Boxes under the bed! After such audacity I shall expect to hear he has appropriated the space under the dining table. One friend and neighbour—a great Potato man—has his early sets in shallow boxes, and arranges them in the cart-horse stable above the standings. I am not sure whether he does not utilise his cow houses for the same purpose. He farms between 5 and 600 acres, so needs a good deal of storage room even for "earlies." As to the main stock of Potatoes, if the "pie" is really well made—i.e., 7 feet across at the base, and yielding three-quarters of a ton to a yard (all sorts), lavishly covered with straw, well packed, and closely earched, surely they cannot take much harm. Of course, the "pie" must be made with its ends north and south, and care must be taken not to open it during the sunny hours of a frosty day. "Pie"-making is a gift, but it is a gift that can be acquired and cultivated.—THE MISSUS.

— **RUST IN CARNATIONS.**—For this purpose dissolve 1 lb. of sulphate of copper in two quarts of ammonia in a 2-gallon jar. When dissolved add another quart of ammonia and stir well. [The liquid can be kept in this form for some time and used as needed.] Add a pint of this solution to a barrel of water and spray the plants every two weeks, taking care to commence prior to the attacks of the fungus.

— **THE USE OF GAS TAR.**—In greenhouses this is a dangerous article to use, at least in the hands of the large majority of people, and should never be employed as a coating for the pipes. In the first place it gives off for a time noxious fumes when heat is let in which are certain to cause very severe damage to the plants; and in the second place, it does not maintain a good black colour. Lamp-black, mixed with linseed oil and turpentine, made into the consistency of an ordinary paint—rather err on the side of being too thin than otherwise—is about the best thing to use.

— **FLOWERS FROM THE RIVIERA.**—In fresh cut flowers from the Riviera there is now a brisk trade. The principal forwarding agency is at Calais, where the perfumes of spring flowers are strangely associated with surroundings of frost and snow. The consignments average 500 packages, containing Violets, Narcissus, Jonquils, Anemones, and Roses. They leave the Riviera every afternoon, reach Calais next evening, and are in Covent Garden the next morning in time for market. Many of the consignments go direct to Manchester and Liverpool, and even across the Irish Sea.

— **INK FOR ZINC LABELS.**—On page 133 appears a recommendation to use sulphate of copper and chloride of calcium. I do not know what the merits or demerits of this particular mixture may be, but I think it is necessary to suggest caution. Sulphate of copper I consider useless for the purpose. I recommend a solution of bichloride of platinum, 16 grains to the ounce of distilled water. This is much more expensive than sulphate of copper, but it is infinitely more satisfactory, and I can vouch for perfect legibility after an exposure of nearly fifteen years. For this recipe I was indebted, and still am indebted, to Mr. P. N. Fraser of Edinburgh.—R. IRWIN LYNCH.

— **VISITORS TO KEW GARDENS DURING 1894.**—The number of visitors was less by about 450,000 than those who entered the Gardens in 1893. This falling off is due to the marked difference in the summer of the two years. The "Kew Bulletin" shows the total does not differ materially from that of 1891, or depart widely from the average of the past ten years, which is 1,416,887. The attendance at Kew for a year now oscillates about a figure nearly approaching a million and a half. The total number of visitors to the Royal Gardens during 1894 was 1,377,588; the lowest number admitted in any one month was 18,184 in January, and the highest was 229,161 in May, the latter number closely followed by 218,514 in March and 211,192 in August.

— **GERMAN EAST AFRICAN VANILLA.**—The first sample consignment of Vanilla cultivated in German East Africa (Kitopeni plantation) has recently been received in Hamburg, and was, says the "Chemist and Druggist," very favourably commented on, both in regard to natural quality and to preparation. The pods, it is true, are not equal to the best Mauritius Vanilla, but the shipment was of thoroughly marketable quality, the pods being from 6½ to 10 inches in length, and well crystallised. The great drought of the last season has been very injurious to the development of the fruit, but shade trees have now been planted and irrigation works started, and it is expected that next year the output will be much in excess of the present. The present season's crop, however, which amounts to about 10,000 pods, is expected to cover the cost of production.

— **JANUARY WEATHER AT HODSOCK PRIORY, WORKSOP, NOTTS.**—Mean temperature of the month, 31·0°. Maximum on the 2nd, 42·6°; minimum on the 12th, 8·8°. Maximum in the sun on the 30th, 90·1°; minimum on the grass on the 29th, — 0·6°. Mean temperature of the air at 9 A.M., 30·4°. Mean temperature of the soil 1 foot deep, 35·1°. Nights below 32°, in the shade twenty-two, on the grass twenty-nine. Total duration of sunshine in the month, forty-six hours, or 19 per cent. of possible duration. There were thirteen sunless days. Total rainfall in the month, 3·54 inches. Rain fell on twenty-four days. Approximate averages for January—Mean temperature, 37·1°; sunshine, thirty-five hours; rainfall, 1·69 inch. The coldest January since 1881, the wettest for at least twenty years. Most of the downfall was snow, but a good deal of rain fell between the 18th and 20th, though the thaw was never complete and the frost soon returned. We are passing through Arctic weather just now. On Friday morning the 8th inst. the thermometer on the snow registered 9° below zero.—J. MALLENDER.

— THE annual show of the LONDON PANSY AND VIOLET SOCIETY will be held at the Crystal Palace on Saturday, July 6th.

— BETWEEN January and September, 1894, Apples for which 2,500,000 dollars was paid were sent from America, and our cousins "on the other side" have concluded we are great Apple eaters.

— AN AMERICAN TOMATO.—Mr. T. R. Haines, Abbott, Nebraska, claims to be the raiser of the largest Tomato—3 lbs. 3½ ozs., and 8½ inches in diameter. The grower is no doubt proud of his feat, but such monstrosities are not popular in the "old country."

— DISTRIBUTION OF SEEDS.—According to an American contemporary Secretary Morton is doing good service by discouraging the free distribution of garden seeds by the Government. The best of all reasons is that there is no more reason why seeds should be sent away by the thousands of dollars worth, than that it should give away penknives or scrubbing brushes. Indeed, it would be more sensible to send these useful things, for not one package of seeds in a hundred is ever sown.

— BOURNEMOUTH GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—The annual meeting of the above Society was held recently, Mr. H. Elliott, Christchurch, presiding. The report and balance-sheet for the year was submitted and approved. The report showed the Society to be in a satisfactory condition, although there had been no increase in the number of members, some former members having left the neighbourhood, and others being unable to attend. Hearty votes of thanks were accorded to the President and officers of the Association for their past services. Dr. H. K. Hitchcock was again elected President, and the names of Mr. T. G. Rooper, Mr. C. A. D. George, and Mr. C. H. Mate were added to the list of Vice-Presidents.

— A SUBSTITUTE FOR SEAKALE.—The question of keeping up a continual supply of forced vegetables during the early spring is one of some concern to many gardeners, and as "Necessity is the mother of Invention," this problem has been the means of several substitutes being tried to take the place of Seakale. Perhaps the most suitable for this purpose are the tender forced growths of the ordinary Swede Turnips, which, if properly treated, form a very palatable dish. The best mode of procedure is to plant the Turnips in a warm dark position, as in the case of Seakale. The quicker they grow the better, as if the temperature be cool, and the growth made slowly, they will become tough and of a strong flavour, thus rendering them unfit for table. Care should be taken not to cover the crowns of the Turnips with soil, or this will probably cause the young growths to decay. After planting they require well soaking with lukewarm water, and the light totally excluded. In a few days the growths will be sufficiently long to cut, when, if cooked and served up in the same way as Seakale, they form an excellent substitute. The used roots may then be replaced by a fresh supply.—G.

— THE BOTANICAL MAGAZINE.—The current monthly number of this work comprises the following subjects:—*Richardia Pentlandi* (Aroideæ).—Of eight known species of *Richardia* this is one. It is a native of Basutoland in South Africa. The tubers were given to the Kew Gardens by Mr. Galpin of Barberton, South Africa, in 1892. The colour of the spathe is canary yellow without and bright gamboge within, while at the base below the spadix there is a dark purple ring. *Aphærema spicata* (Samydaceæ).—This is a slender, smooth, shrub-like plant, coming from the South of Brazil. The leaves are not unlike those of the Fuchsia, the midrib having a deep red colour. The yellow flowers are arranged in dense spicate racemes. *Aloe brachystachys* (Liliaceæ).—This was sent from Zanzibar by Sir John Kirk to Kew, where it flowered in 1894. The leaves have the usual character of the Aloes. The raceme consists of flowers having a pale pink perianth tipped with green, and arranged rather densely, so as to resemble an obtruncated *Tritoma* in outline. At the base of the pedicels are green bracts striped with brown. *Cephalanthus natalensis* (Rubiaceæ).—This plant, though discovered in the borders of Natal some forty years ago, has only recently been raised at Kew, from seed received in 1886. The flowers are arranged in dense globose heads, almost like those of a composite plant, and owing to the tube of the corollas being rose red, their lobes green, and the anthers yellow, present a curious admixture of colours. *Musa Hilli* (Scitamineæ).—This is one of four species of Plantain indigenous to Australia, and comes from Queensland. The seeds from which the present plant was raised arrived at Kew six years ago. The male flowers are exposed, and arranged in circles below the conical envelope which encloses the female flowers.

— MRS. PARKER returns her most grateful thanks to all subscribers to the Royal Gardeners' Orphan Fund who contributed by their votes towards the election of her son.

— AMERICAN FRUIT CROPS.—The Nova Scotia fruit crop is the best on record, and is valued at 10,000 dollars. Two hundred thousand barrels of Apples were exported to London. The total number of men employed in fruit culture amounts to 9000.

— THE NATURAL HISTORY OF PLANTS.—The tenth number of this work has appeared. In it the subject of fertilisation is continued, being illustrated by many interesting diagrams. The question of the Linnæan system of classification is discussed, and prefixed to the text is an excellent coloured illustration of *Victoria Regia*.

— THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—At a meeting of the above Society on February 12th a paper was read on "The Potato: its History, Cultivation, and Disease." After giving the history of the Potato from its first introduction to this country, Mr. Riley passed on to the cultivation. Potatoes, he said, may be grown in a wide range of soil and climates. The lighter class of soil produces the best qualities, especially for early use, the stronger and warp lands the heavier crops. Good crops are grown on peat and bog lands, notably in Ireland. Fair sized tubers of about 3½ ozs. uncut give the best results. For arresting disease a dressing of sulphate of copper and quicklime was recommended.—F. L. T.

— NEW YORK FLORISTS.—Just now the stores of the retail florists are bright with an unusual number of cut flowers of different kinds, which show a wide variety of colour. Single red Tulips sell for 1 dol. a dozen, the more popular pink and yellow sorts commanding as much as 1 dol. 25 cents, while the double yellows cost 1 dol. 50 cents a dozen, which is also the price asked for the few double pink Tulips that have appeared. Other flowers of bulbous plants are single Hyacinths at 75 cents a dozen, the limited supply of double Hyacinths bringing 35 cents a stalk. Poet's Narcissus are occasionally seen, and these sell for 1 dol. a dozen. Paper-white Narcissus, yellow Jonquils, and Freesias are seen in many collections. Well grown Lilacs, with luxuriant foliage, cost 1 dol. 50 cents to 2 dols. for a bunch of ten to twelve single sprays for the purple flowers, and the white Lilacs bring 2 dols. to 3 dols. The best Carnations, and a fair grade of Mignonette, cost 1 dol. 50 cents a dozen. A bunch of two dozen sprays of Forget-me-nots may be had for 1 dol., and half this quantity of Lily of the Valley costs 75 cents. Roses are in great abundance, and vary in price, according to the quality, a great many of them being of more than average excellence. Good flowers of Madame Cusin bring 2 dols. a dozen, while the same grade of Bride and Catherine Mermet sells for 2 dols. 50 cents to 3 dols., and the better grades of any of these Roses command 5 dols. and 6 dols. a dozen, and even more. Cattleyas sell for 9 dols. a dozen and upward, and white varieties bring twice as much. Cypripediums are scarce, and cost 4 dols. to 5 dols. a dozen.—("Garden and Forest.")

— WAKEFIELD PAXTON SOCIETY.—There was a good muster of members at their rooms on Saturday, the 9th. Mr. H. S. Goodyear presided, and Mr. H. Chapman was vice-chairman. A function unique in the annals of the Society was performed in the election of Dr. Clark, M.A., Ph.D., Yorkshire College, as an honorary member. In proposing a resolution to this effect Mr. G. W. Fallas stated that it was the unanimous desire of the Committee that something should be done to give expression to their gratitude and high appreciation of the many services Dr. Clark had rendered to the Society. He spoke in the highest terms of the Doctor's abilities as a horticulturist and agriculturist and as an eloquent exponent and teacher of these sciences. In electing Dr. Clark to this position the Society would be honouring itself and in some slight degree be showing its sense of the many favours it had received at the Doctor's hands. The lecture for the evening was on "The Art and Method of Grafting," Mr. T. Wilson reading an excellent and practical paper on the subject. In the course of his paper he showed the great importance of the process in the duplication of new varieties, and in the invigorating or restraining influence it exercises on various plants. Interesting reference was made to the peculiar affinities which various plants manifest when subjected to the operation, and to the ease with which plants could be multiplied which would otherwise be expensive and scarce, owing to the difficulty of increasing them in other ways. Mr. Wilson enumerated and fully explained all the principal modes of grafting, and illustrated his remarks by showing well-prepared specimens of each mode. A number of questions were answered, after which the essayist was thanked for his paper.

— **SHIRLEY AND DISTRICT GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT ASSOCIATION.**—An extra meeting was held at the School Room, Highfield, Southampton. Mr. E. Molyneux, Swanmore Park Gardens, gave a lecture on "The Salient Points in Vegetable Culture," more particularly addressed to the owners of allotments and cottage gardens. "The salient points," he said, "were proper preparation of the soil, manuring in abundance, thin sowing of seeds, and regular attention during the period of the growth of crops." He laid stress on the fact that the Potato, which is after all the mainstay of the cottager, should receive more attention than is sometimes given it. A hearty vote of thanks was accorded to the lecturer at the close of his remarks.

— **THE WEATHER IN GUERNSEY.**—After three weeks of as fierce a north-easter as could be wished for, with a share of King Frost, but no great weight of snow, a welcome change has come about since Saturday, the wind having abated and changed its quarter, but the nights are still more or less frosty. The full extent of the damage to outside crops can hardly be estimated till the frost is thoroughly out of the soil. This much, however, is certain, that all the early Radishes are spoiled, and the same to a great extent may be said of the Broccoli, though a portion of the most backward of this may recover. It is hoped Daffodils have not taken much harm, though the frost, having penetrated the soil to a depth of 4 inches or more, it is causing some anxiety. Those growers who have been raising Potatoes in cold houses have also had their crops much damaged. Tomato planting is now in full swing, and if we are spared any further checks may yet, though necessarily late, have a bountiful season. I should say that everything out of doors will be quite three weeks late.—X., *Guernsey*.

— **TOMATO CHEMIN ROUGE.**—On page 144 Mr. Jas. B. Riding expresses surprise at my having omitted all mention of Tomato Chemin Rouge in my article on the Tomato Supply (page 88), and further adds that this, according to his experience, is the most popular market variety. Why it was not mentioned is because with us it does not succeed so well as the others recommended. I was one of the first to grow Chemin Rouge in this country, Messrs. Vilmorin & Co., Paris, kindly forwarding the variety for trial. It proved to be a really good variety, and I was one of the consenting parties to its receiving special mention at the great Chiswick Vegetable Conference. At the same time, it is not very distinct from Ham Green, and for two seasons in succession it did not do so well as either that variety, Al (Sutton's), or Challenger. It was not a case of growing a few score, but several hundred plants were tried each time, and we found that the plants of Chemin were more liable to disease and the fruit more given to crack than in the case of the other varieties named; hence the reason of its being ignored this season. If I am rightly informed, very large growers near London find the Chemin Rouge less addicted to disease than other popular market varieties, but hearsay is doubtful evidence, and Mr. Riding, I feel certain, would rather have my own experience, whether it agrees with his or not.—W. IGGULDEN.

— **THE ORPHAN FUND ELECTION.**—Now that out of the thirteen candidates nominated, six are elected on the Fund, seven remaining over, it may be as well to take stock of the claims of the seven before new ones are added, or promises to vote be asked for. There are of the non-elected candidates three that many subscribers to the Fund will agree with me in thinking should be withdrawn, as it is too improper to ask of poor gardeners to subscribe to a fund to assist in such cases. To me it is a marvel that such cases should have been nominated or selected by the Committee. The first, a child eight years of age, in a family of seven, has six brothers and sisters of the ages now from fourteen to twenty-five, and will next year range from fifteen to twenty-six years. What are all these doing that they cannot support the other one next year, nine years of age? Can anyone conscientiously say that is a fit case for the Fund? Next comes a child three years of age, thirteen in family, of whom eight range in age now from thirteen to twenty-eight years, and all next year will be older. What are all these now comparatively able-bodied persons doing that they cannot help the younger to the extent of a few shillings a week? Surely so many could provide for all the rest well. There is still another case of a candidate eight years of age, twelve children, ages ranging from eight to twenty-six years; that means, though not shown, oddly enough, that at least eight of the number must be of working age, and well able to contribute largely towards the younger children's maintenance. I cannot see that the Orphan Fund is intended to help such cases as these.—ALEX. DEAN.

— **THE HISTORY OF THE VIOLA.**—The Rev. David R. Williamson writes:—"Like your Chingford correspondent, Mr. J. B. Riding (page 124), I read with much pleasure Mr. William Dean's recent contribution to the *Journal of Horticulture* (page 98). His history of the Viola, which was admirably condensed, was to me uniquely interesting, for there are few Violas of any conspicuous merit that I have not, for the most part successfully, cultivated in my garden. Yet I cling strenuously to certain of my favourite varieties, such as Violetta, Countess of Wharnccliffe, Duchess of Fife, Ardwell Gem, Ravenswood, H. M. Stanley, Edina, True Blue, Blue Gown, Countess of Hopetown, and Countess of Kintore in preference to many more recent introductions (White Duchess, Iona, and Olivetta being excepted, as pre-eminently attractive) for the creation of artistic effects. I am glad to find that Mr. Dean appreciates so highly the productions of such raisers as Dr. Stuart, Mr. William Cuthbertson, Mr. Baxter, and Mr. James Grieve. I think it is possible that the last mentioned horticulturist, who has been especially successful as a Viola cultivator, has not by the majority of writers on this subject been adequately recognised. Many earnest cultivators, I doubt not, are perfectly familiar with Mr. Grieve's creations who have never heard his name."

— **THE EFFECTS OF THE FROST.**—It is perfectly correct to say that vegetation in the south may have been found to suffer more largely than in the north, because with us the snow cover has been so thin just recently. When over in the Middlesex market garden districts I heard the most lamentable accounts of the complete drying or wilting up of all vegetable greenery, the leafage and stems being frosted beyond possible recovery. Not only is there nothing worth marketing, but because of the water famine, dealers will not buy, neither will consumers. Even such small kinds as Primroses, Violets, Daisies, amongst hardy and close-growing plants, the mischief done is excessive, and the hardy plant growers who supply the dealers will find it hard to meet the demand till late in the spring, when the season for sale is practically over. Amongst shrubs and Roses the frost seems to have, even so far as appearances go, worked havoc. The real extent of the harm in this direction cannot yet be fully estimated. Tender plants in greenhouses and frames have been killed wholesale where heating powers were moderate, and there will be a large demand for bedding plants in the spring. From many directions I hear of Potatoes largely frosted in pits, so frosted that they are irrevocably destroyed. Clearly to make good deficiencies, seeds will have to be largely sown in many directions, and a busy time seems in store for seedsmen.—A. D.

— **SCOTTISH HORTICULTURAL ASSOCIATION.**—The first meeting of the session of the Scottish Horticultural Association was held in Edinburgh last week, the new President, Mr. R. W. E. Murray, presiding. Mr. Murray, in his opening address, dealt with the professional and amateur aspects of horticulture, and the advantages which young men now possessed as compared with those offered fifty years ago. As an amateur gardener, he said the class of horticulturists to which he belonged did not meet with the consideration they deserved at the hands of the general body of horticultural societies, but that charge of neglect could not be laid at the door of their Association, which provided classes for amateurs at its great exhibitions. One reason for the success of the amateur was that he was generally a specialist, devoting his energies to very few varieties of plants, and another was his great love for what he cultivated. When a man was drawn into the cultivation of flowers his life became better, purer, and worthier, for there was no pursuit more fascinating and no more elevating taste than the love of flowers. He advised young men desirous of becoming professional gardeners to be sure that it was the line of business for which they were best suited, and having once entered on that path of life to be prepared by energy and determination to overcome all difficulties, and not to give way before disappointments. On the motion of Mr. D. P. Laird, Mr. Murray was cordially thanked for his address.

THE CHARLES COLLINS' FUND.

WE have pleasure in announcing the following subscriptions received during the past week, and sent to the Treasurer, towards this very deserving case:—

deserving case:—

	£	s.	d.		£	s.	d.	
Amount previously ac-				H. Foster ...	...	0	1	0
knownedged ...	52	2	0	J. T. Watson ...	...	0	2	6
H. W. Adnitt ...	0	5	0	H. Cannell & Sons ...	...	0	10	0
J. S., <i>Barnet</i> ...	0	2	0	H. W. Percy ...	...	0	10	0
H. Dunkin ...	0	10	0	Miss Harman ...	...	0	2	6
A Friend ...	0	2	0					

SEASONABLE NOTES.

THE great havoc which the past few weeks of intensely cold weather must inevitably make among the inmates of our gardens cannot be gauged with anything like accuracy until some weeks after the frost breaks up. It is therefore impossible in many instances to do anything at present to make good the losses we shall assuredly have to deplore. There is, however, one department in which we can do much to help to tide over difficulties which must occur later on. I refer to the kitchen garden. We may take it as a foregone conclusion that large breadths of Broccoli will be killed outright; none but the very hardiest will be able to withstand such a succession of severe frosts.

Under such circumstances it is questionable if even such sturdy and reliable kinds as Leamington and Late Queen will not show a percentage of losses. Large numbers of Cabbages intended for the spring crop, especially those not planted early, will certainly succumb. Lettuce, too, which in the early autumn months were pricked out rather closely together in sheltered positions, ready for transplanting in the spring, will, I fear, be totally destroyed, even where the protection of straw or bracken has been given.

Parsley is already extremely scarce in many gardens, for although these may have as large a stock as usual to begin the winter with, the suspension of growth for so long a time upsets all calculations as to supply and demand. Seeds should, of course, be sown at once in a brisk heat so as to get a stock of young plants as quickly as possible. But to tide over present difficulties, or rather those of the immediate future, plants may at once be carefully lifted from the open air, placed in boxes, and taken into heat. The work of lifting is not altogether easy, but it may be accomplished by the following method of procedure:—With the aid of a pick drill out a narrow channel on either side of a row of plants. Let this be 2 or 3 inches from the plants on either side, fill the channel with very hot water, and repeat the operation until it is possible to loosen and remove in large blocks the soil containing the Parsley roots. After placing these in heated structures to thaw, the additional operations necessary are simple enough.

A sowing of some early variety of Cabbage ought also to be made at once. Veitch's Earliest of All I find exceedingly useful for this purpose, as it grows and "hearts" very quickly, and is of the finest quality. I have already made a sowing of Golden Queen and Early Paris Market Cabbage Lettuces, and strongly advise those who have not done so not to delay longer, as the plants resulting from sowings made now cannot fail to be of great value. A moderate sowing of some well-tried variety of Cauliflower ought also to be made now. Extra Early Forcing is one of the best for the purpose. I find it is a good plan to sow seeds of the above description in shallow boxes, placing them in an intermediate temperature. When the young plants appear they should be kept near the glass, and as soon as the first rough leaf appears be pricked out 2 inches apart in other boxes, or in soil placed upon a hotbed. In either case they ought to be kept warm and rather close, and afterwards be gradually hardened till the weather is favourable for planting them in the open air, then they should be protected with spruce branches for a week or ten days.

This work of seed-sowing with a view to securing an early supply of vegetables ought this year to be done more extensively than usual, for a dearth of "green stuff" must follow such exceptionally severe weather. Bearing this in mind, I am making two sowings of such indispensable vegetables as those enumerated, one being placed in heat, as before stated, the other in a pit to which only sufficient heat to exclude frost is given. This will insure a succession of plants, and at the same time help forward future operations by getting these important details off hand before the "rush" of work following the frost.

During the prevalence of the present severe weather materials should be prepared, and hotbeds made up in every available pit. All spare frames ought also to have beds formed for placing them on. It is often necessary through force of circumstances to have these scattered about in various positions where shelter and sunshine can be obtained, but when it is possible to do otherwise it is a great advantage to have a proper frame ground, so that hotbeds for various purposes may be made up in ranges; the labour involved in giving them the necessary attention is then reduced to a minimum, and loss of heat from the fermenting materials is more gradual than in the case of isolated beds. If any old lights are at command time will be well spent in fitting up rough boards to form sides for them on some of the prepared hotbeds. These will be of great service in raising early crops of Carrots, Radishes, Lettuce, Potatoes, young plants of Leeks, Cauliflowers, Celery, early Borecole, and Parsley.

The winter and early spring of 1895 will in the future be

looked on as an exceptional one, and a scarcity of vegetables there must be for some time to come, but those who are the most energetic now in taking time by the forelock, so as to provide early supplies as quickly and abundantly as circumstances permit, will undoubtedly meet with due reward.—KITCHEN GARDENER.

MR. GEORGE TABER.

MR. GEORGE TABER, whose death was recorded in our columns last week, was one of the most widely known and highly respected members of the English seed trade. In his early manhood he occupied the position of head gardener to the Du Cane family at Braxted Park, and during this time he was a frequent and successful exhibitor at the metropolitan and local exhibitions. The seed grounds of Essex being close at hand soon attracted his attention, and ultimately led him, about forty years ago, to rent a small field in Rivenhall, and start in business as a seed grower. The extensive botanical knowledge which he had acquired proved of the greatest service to him in his new venture, and, united with sound judgment and untiring zeal, enabled him to build up a large and successful business. He has been heard to say that he found it necessary to grow 80 acres of one variety of Mangold Wurtzel to meet the demand for seed.

With a view to obtaining some relief from the heavier burdens of this large and still increasing business, as well as the establishment of it on a permanent basis, Mr. Taber in 1887 joined with the executors of Mr. Robert Cooper in founding the business of Cooper, Taber & Co., Limited, of Southwark, and Witham, Essex. Although on the formation of this Company he may be said to have practically retired from business life, he held a position on the Board of Directors, where his wide experience and extensive knowledge were of the greatest possible value. He also paid occasional visits to some of his old customers, by whom his genial manners and wise counsels were highly appreciated. The leisure he now enjoyed gave him the opportunity to accept a position on the Fruit and Vegetable Committee of the Royal Horticultural Society. His extensive knowledge was of great value here, and he was quick to perceive the merits or shortcomings of anything brought under examination. He took great interest in the vegetable trials at Chiswick, and he was rarely at fault in his estimates of the value of the kinds and varieties of vegetables under examination. He attended the meeting of the Royal Horticultural Society at Westminster last month, but did not appear to be in his usual health.

In private life Mr. Taber was one of the most cheerful and estimable of men, an ardent supporter of the cause of temperance, and other good work. Many a struggling farmer, seed grower, and seedsman have been helped out of their difficulties by his generous aid, and one of the most pleasing acts of his closing years was the building of a number of cottages in the village of Rivenhall, in which the deserving poor might live rent free.

He leaves one son, Mr. James Taber of Little Braxted Hall, who is also a director of Cooper, Taber & Co., Limited. The funeral took place on Saturday, 16th February, at the Rivenhall Parish Church.

We give a portrait of Mr. George Taber, as a gardener who rose to affluence by his excellent work and business aptitude, and because he was a good and kind-hearted man.

REMOVING INSECTS' EGGS IN FEBRUARY.

GARDENERS sometimes complain, not unreasonably, of the peculiarities of the British climate, its frequent ungenial summers, its cold springs, and stormy autumns, but then there is a compensation which is often forgotten. The warmer, more equable climate of other countries, not to go farther than the Continent, favours the increase of insect life as well as the growth of plants; thus, for example, there are various species of which we have only a yearly brood, though elsewhere there are two or even three. Severe, too, is the British winter on many broods of hibernating caterpillars. The author who made himself so pathetic over the sorrows of a broomstick might have found a better theme in the trials of a juvenile caterpillar, which, after some small allowance of food in the autumn, has to endure the cold of winter patiently expectant of spring leaves. Many thousands no doubt never live to taste them, killed by damp or rough winds more frequently than by frost (the subterranean ones come off the best), other thousands are devoured by birds, or destroyed by gardeners—when they can.

Also, just about this time it is very desirable to remove all eggs of insects that can be got rid of before the hatching season arrives.

Many are cleared off trees and plants by the processes of syringing and spraying, also by pruning and scraping, but if they are only carried to the ground a part of them may hatch afterwards. It is probable some eggs can pass the ordeal of our solutions without the germs being killed, and neither cold nor rain affects them, so that those insects which pass the winter in the egg state have a notable advantage. Fortunately for us, one check on them is the activity of tiny ichneumon flies, which puncture insects' eggs, depositing their own progeny, by which the contents are devoured.

to prevent its farther increase. Very fortunately, the gipsy moth caterpillar—once not uncommon in Britain—has become scarce, but the patches of eggs coated with furry down are easily discoverable on the bark; and on the Continent, where the insect still much infests orchards, it would seem the removal of these is not attended to.

The eggs of our well-known foe, the winter moth, are often laid in clusters, which, by their green colour, may be detected on the trunks and branches of fruit trees, but they are also placed on



FIG. 30.—MR. GEORGE TABER.

Our egg-killing proceeds usually in a more wholesale manner, but it is necessary to be also on the outlook for small patches of them which may come under our notice, or which we may search after because they may not be removed by washes. To take an instance, the curious rings or necklaces in which the lackey moth arranges its eggs resist the application of water, being covered with a sort of varnish; so they must be picked off the twigs and branches. As the caterpillars feed in companies on the Apple, occasionally on other fruit trees, and the species has been rather abundant the last few years, it is desirable

the twigs and buds, where they escape the eye, though spraying, even with water alone, removes them. Another species allied to this is the mottled amber (*Hybernia defoliaria*). The moth deposits eggs early in the winter on a variety of trees, and occasionally selects the Cherry, the caterpillars sometimes doing unsuspected mischief, from their feeding out of view. The accidental finding of this moth's eggs in lots of 200 or more on twigs high up in a tree suggests that here, as in the case of the winter moth, there may be assistance given by the male, enabling the wingless female to reach a height to which she would hardly

crawl. Solitary eggs are seldom noticed, especially if pale in colour, nor those in twos or threes, such as those of the figure-of-eight moth, which are laid in the autumn on the Apple bark, and the blue-headed caterpillar begins to feed while the leaves are expanding. Their eggs may be artfully hidden. I have searched in vain on the Gooseberry for those of the V moth (*Halia wavyaria*), which must be laid during the summer, which is the moth's season; and the caterpillar, a black-warted, variously coloured creature, joins that of the Gooseberry moth in attacking the early foliage. Probably it is lodged about the buds, and may be removed by syringing or spraying; this is also effective for the destruction of a much smaller insect, the scale, which much infested Gooseberries in 1893 and 1894. With this, as with the other species of scale or coccus, there is usually the dried body of the parent serving as a shield to the eggs, so that some force of application or else friction is necessary to dislodge them.

Miss Ormerod notes that the Gooseberry scale begins to be moving in February, its food being obtained by suction from the bark. No doubt, both indoors and out, the various scale insects are on the alert early; hence the need of energetic measures now, if such have been delayed. That able entomologist recommends as effectual a mixture of equal parts of kerosene and softsoap, suitably diluted with water; also, the sulphuret of lime dressing has been recommended for the eggs of scale, and indeed for any kind. It is possible these and similar dressings, compounded of petroleum or of gas tar, may permeate many eggs, and kill the germ they contain, even should they not be dislodged from the bark, or some destroyers may act by closing any minute pores that admit air to the interior. This is probably the efficacy of oils, such as whale and lemon oil, which some strongly recommend for Apple and Pear scale, insects that are slow to stir, since they are seldom moving till the end of April.

Amongst the smaller moths of the Tortrix tribe we notice that the eggs of several injurious species are laid in the autumn on, or around the buds, and hatch during the spring. The species familiar to us as an early disfigurer of Rose leaves may be checked by syringing in the winter. If a petroleum liquor be used it should be of only half the strength that is employed for fruit trees, and washed off afterwards. Few gardeners take the trouble to spray that favourite shrub, the Lilac, yet this might be done to advantage about February, as the eggs would be removed of the troublesome little moth, *Gracillaria syringella*, which, in its larval stage, so greatly disfigures the Lilac by twisting and devouring the leaves. Even when they are of black hue it is seldom the eggs of aphides, which are placed singly, and of course minute, are noticeable to the eye, but they can be washed off trees and shrubs now. There is special reason for cleansing Plums and Damsons, since on them the first brood of the Hop aphid (*Phorodon Humuli*) generally feeds in the spring, performing a migration to the Lime at some date in early summer.—ENTOMOLOGIST.

TOMATO HOUSES IN THE WINTER.

I do not know why "A Perplexed One" should suggest the necessity of having something profitable to grow in Tomato houses in November, seeing that it is really not difficult to have June-sown plants fruiting more or less freely in gentle warmth up to Christmas, if only the blooms have been set up by the end of October. Of course no one would suggest that all houses should be so utilised, but at least some might be, and thus furnish Tomatoes for a much longer season. Then the earlier houses could be cleared of Tomatoes by the end of October as intimated, and having at hand a large extent of rough span stages that could be erected, on these could be stood as thickly as possible pots sown with some good early forcing dwarf Beans. If these stages would admit of access beneath them, such as is frequently seen in span Strawberry houses, a portion of the space below might be utilised for Mushroom beds, assuming that the drip from the Bean pots did no harm. Of course I am assuming that the houses are broad spans, as depicted in the illustration, but "A Perplexed One" gives no information.

If they be low narrow houses, and have stages fixed on each side, then no others would be needed. As the seedlings become strong the pots may be thinned out so far that two or more other houses may soon be filled, and if there be successional houses for other sowings then every house might be filled with dwarf Beans by Christmas, and once gatherings were started there would be good pickings all through the winter. Is it probable there can be found any other product that can be so easily and so cheaply raised, and so comparatively easily grown during the winter that would be more profitable than Dwarf French Beans?

"A Perplexed One" seems to regard flowers as a forlorn hope. I do not find that such is the case generally with the professional grower, but here, as in so many other things, very much depends on marketing methods. But if in this particular case flowers be out of the question, and it must be so when flower culture for market is not the regular vocation, there seems to remain no other course open than to utilise Tomato houses by growing French Beans. It is quite possible to have

young Tomato plants coming on in the months of February and March at the same time that Beans are podding, so that one crop in no case incommodes the other.

The necessity which seems to exist for the filling of the houses with Tomatoes again early in the spring of course materially handicaps their free winter use, and for that reason it is not practicable to grow many things that otherwise might be suggested. I shall be pleased to learn of some other crops which may be thought as advantageous, or more so, as are Dwarf French Beans.—INQUIRER.

NOWADAYS such an "one" as "Perplexed One" has a numerous kindred, who would only be too glad to know for a certainty what to grow at any time in order to reap some benefit. As he confines himself to what may be termed off-season, he has evidently no fault to find with the in-season. His query, "What to grow from the end of October to the end of February in order to reap a profit from Tomato houses?" is of an extremely interesting character, not only to the immediate parties concerned, but also to an ever-increasing and consuming public. We may all witness with delight the spread of horticultural knowledge, and we may safely say that that knowledge can never outstrip what lies hidden in the bosom of Flora; and though some may lament the intrusion of outsiders into the pleasantries of horticulture, they need not be down-hearted on that account, the source is as yet abundantly in a primeval state, and not likely to be exhausted.

It is quite true that last Christmas Chrysanthemums were a drug, but it must be remembered that was not the fault of the cultivator, nor yet of a purchasing public, but simply arose from the extraordinary mildness of the particular season, therefore "Perplexed One" would act wisely not to discard the Chrysanthemum, for with his facilities of house room let but a sharpish frost fall about September 20th, Chrysanthemums, unless under cover, would be scarce enough by Christmas, and instead of being quoted at 2s. 6d. per dozen bunches, would be more likely to be 12s. or 15s. for the same number. Anyone who has attended Covent Garden flower market for the twenty years must be cognisant of the wonderful increase of produce now displayed in that emporium for sale. As a feature of that expansion it may be stated that in the seventies there was but one solitary continental representative who brought into the market the cut flowers in a few boxes strapped to his shoulders, but now the increase is of such dimensions that the tonnage has to be computed almost daily. Even our own home trade has increased and will increase, and it may be truly observed with all the expansiveness, good produce in the season will always command fairly remunerative returns.

No doubt the prosperity of the profession is greatly influenced by the unhealthiness of commerce; people must have bread and cheese, but they need not have flowers, and thus, naturally, the beautiful administration of Flora is curtailed and markets rule somewhat dull. Nevertheless, cultivators must ever try to be ready with what is wanted. It is not business to bring good produce late into the market; be in time, and secure the best custom.—A. M.

[We shall be glad to publish any suggestions that may be possibly helpful on the subject under notice, apart from the offer we made last week of a silver medal for an essay that may be deemed worthy of the award, in accordance with stipulations that will in due time be furnished to intending competitors.]

PLANT NOTES.

STATICE PROFUSA.

THIS useful plant does not appear to be nearly so much appreciated as it deserves, consequently a few notes respecting its general qualities will not be out of place. It requires a warm or intermediate temperature, and the purple and white flowers are produced on erect, branching spikes. The successful cultivation of *S. profusa* may be briefly summed up as follows. Young plants are by far the best for general decorative purposes. A stock of these should, therefore, be raised annually, either from seeds or cuttings.

If propagation be effected by means of cuttings they should be inserted singly in small pots, and placed under a hand-light till rooted. As soon as the roots have obtained full possession of the soil the plants must be removed to larger pots, as on no account should they be allowed to become root-bound, in case of which the plants would quickly present a sickly appearance. At all stages of their growth they are subject to the ravages of various insect pests, mealy bug and green fly being especially troublesome. Stringent measures should, therefore, be taken for their eradication, for if once allowed to become thoroughly established the plants rarely flourish. *S. profusa* delights in a rich loamy soil, with a little charcoal and sharp sand intermixed.

FARFUGIUM GRANDE.

This plant, which is synonymous with *Senecio Kämpferi aureo-maculata*, stands unique amongst fine-foliaged plants either for greenhouse, conservatory, or general decorative purposes, lasting a very long time in perfection, especially if placed in a light airy position. The leaves, which are similar in shape to those of *Peperomia resedæ-flora*, though much larger, are of a beautiful dark green colour, freely blotched with yellow.

Propagation may easily be effected by means of division of the roots, which can take place at almost any season, but where practicable I should recommend doing it some time during the present month, just

as the plants are commencing to make new growths. It is of comparatively easy cultivation, and delights in a good loamy soil with a fair amount of root room, for if stunted in this respect the foliage is not so fine either in size or colour.

CISSUS DISCOLOR.

In this we have one of the most showy and highly coloured foliage plants that can be found amongst our stove climbers. The bright velvety green foliage, spotted on the upper side with white, the under side being of a deep reddish purple, is very effective. It may be grown in a variety of ways, being equally at home either trained over a halloon or along the roof of the stove, but nowhere is it seen to better advantage than when trained over lofty roof girders, or arches, or up pillars in a warm conservatory, its long sprays of growth, when so employed, if allowed to hang in graceful festoons, presenting a pleasing and attractive appearance.

The best means of propagation is by layering, which may easily be effected as follows:—Prepare a sufficient number of small pots by filling them with a mixture of fibry peat and sharp sand. This being accomplished select a few of the strongest growths, and place every second or third joint on a pot, just covering it with soil and securing it with a small wooden or wire peg; do not cut the joints in any way, but keep the plants, layers and soil, moist to encourage them to emit roots, when in about three weeks they may be severed from the parent plant and grown in the ordinary way. This plan far surpasses that of taking cuttings. If given a temperature of from 65° to 70° the colour will be much better and richer than when grown in a cooler house. *C. discolor* delights in light, rich open soil; a mixture of good turfy peat, fibrous loam and leaf soil, together with a small amount of charcoal and silver sand, suiting them admirably. Great care should be taken to supply an adequate amount of drainage, for anything approaching stagnation about the roots is very detrimental to the well-being of this class of plants. When the plants are growing a little liquid manure will prove beneficial to them, but it must not be given too strong or it will do more harm than good.—GEO. PARRANT, *Ashby Lodge Gardens, Rugby*.

SPAWNING MUSHROOM BEDS.

UNDER this heading, "Mushroom" (on page 102) has asked for information as to the temperatures found most suitable for this, one of the important points in the culture of Mushrooms. Perhaps a few words as to the method we follow may be acceptable to others as well as "Mushroom," though if any inexperienced readers would provide themselves with "Wright's Mushrooms for the Million" there would be small necessity for anything I may be able to say on the subject.

In the first place good spawn is absolutely indispensable. I believe in many instances failures have been attributed to carelessness or ignorance on the part of the cultivator which were really nothing more or less than the result of bad or feeble spawn. Now, as to the manure. Ours is saved in small quantities every day and spread about a foot in thickness in a large shed until it is thought enough has been obtained, but owing to being collected thus the usual practice of turning every other day is dispensed with, as it has been found that the spawn acts more quickly and the beds last longer under these circumstances; if, however, the manure could be obtained fresh at one or two gatherings I should certainly have it turned until quite sweet. All that is done, however, is to mix the later gathered droppings with those obtained earlier, and the whole is then turned once or twice before making up the bed.

The form of the beds may be such as seem most convenient under differing means of shelter, if any. Ours are made flat one above the other on shelves in a house at this season. The beds are about a foot in thickness, beaten firm, but not really hard. I believe it is quite possible to make Mushroom beds too hard. From what I have seen of spawn working in a loose dry heap of manure during the past summer, I have been led to the conclusion that failure may have occurred through making the beds just about as hard as a road. At the same time do not err in making them loose, let them be firm, but with an elastic firmness.

In the matter of spawning let us take as an instance a bed spawned on the 5th January. This bed was made up in the ordinary way, and sticks were inserted by which to judge the temperature, which rose rather high for a few days. I do not know how high, as a thermometer is never used by me for this purpose. At the first opportunity after the heat was found to be declining the spawn was inserted in pieces from 2 to 3 inches square, and about 9 inches apart all over the bed. In spawning a deeper or thicker bed, it would most likely be found wise to wait until the heat had declined to about 80°, but for shallow beds such as ours all the heat possible should be taken advantage of for "running" the spawn. In a fortnight after spawning the bed mentioned was full of white cloudy mycelium from end to end. The Mushrooms are now, February 4th, coming up in all directions, lifting the soil, and some of the earliest are almost ready for gathering.

I forgot to say that soil is placed on the beds from 1 to 2 inches thick after the spawn is put in. Where turf can be spared for the purpose the idea of turfing Mushroom beds, as mentioned in the Journal some week or two back, appears to me well worth carrying out. Our soil has generally grown a crop of Cucumbers or Melons before being used for Mushrooms.

My experience of peat moss litter for Mushrooms has been short, but certainly not sweet. A load of manure procured from a cab

proprietor in the town near was found on arrival to consist of the litter. It is not too much to say that after being at considerable trouble to, as it was thought, get the manure sweet, it grew us the finest lot of an unknown fungus (unknown to me at any rate) that I have ever seen grow on a proposed Mushroom bed.

It has been mentioned times enough perhaps that the manure from horses frequently under physic is of little or no value, that it is true I have proved to my own satisfaction a year or two ago. In a place where the horses were often the recipients of medicine in one form or other I tried to grow Mushrooms in every position I could think of. I should say that from all the beds made in the course of two years possibly half a dozen Mushrooms were procured.—J. W. K.

YOUR correspondent "Mushroom" (page 102) appears to have been unfortunate with his Mushroom beds. It is not unusual for a bed after being made up to reach 120°, and would afterwards do well if, as was the case with the bed mentioned by "Mushroom," the material was in a suitable condition. My practice after having the manure carted to a spot near where the bed will be made up, is to have it carefully turned over, at the same time shaking out all long straw, retaining only the short litter and manure, which is left in a ridge and lightly covered until the trial peg feels uncomfortably warm to the hand; it is then turned every second or third day until the rankness has left the manure, which will be in a fortnight from the time it is first thrown in a ridge.

For the summer supply they are grown on ridges 3 feet wide at the base, and 2½ feet high, length according to manure we have on hand. Trial sticks are placed at intervals the length of the bed, and examined daily. The heat will sometimes rise rapidly for a few days, and when it has reached its highest temperature and declined to about 95° it may be spawned. If a thermometer is used it should be plunged from 2 to 3 inches near where the spawn will be placed. Each brick of spawn should be broken into eight or ten pieces and put in the bed 8 inches or a foot apart, and 2 inches deep, when it must be covered with 2 inches of soil, good strong loam with the rough pieces riddled out will be most suitable. A light covering of litter is again thrown over the bed, this being added to from time to time if the temperature on the soil is likely to get below 80°, during the first month when the spawn will have permeated throughout the bed. I prefer covering the bed with soil at the time of spawning, to leaving it, as is sometimes done, until the mycelium is moving in the bed.

A bed may be spawned at any temperature from 80° to 95° if the heat is on the decline, but if spawned at the higher temperature the Mushrooms will appear in a shorter period, or from six to eight weeks; if at the lower, from eight to twelve weeks, except in the late autumn or winter, when they will not appear until the following spring. The finest Mushrooms are obtained from beds spawned at 80°, and they are produced over a longer time than if spawned at a higher temperature, not throwing so many at one time, which is sometimes an advantage where a continual supply is required, rather than a large number at a given time.

A couple of spare beds are spawned during September, and we find them very useful in the following summer, as they are more to be depended on from May onwards than beds spawned in March or April, and Mushrooms are in greater demand with us in the summer than winter.—J. D. S.

ORDERING SEEDS.

SOME years ago, when I was in the employ of one of our largest seed merchants, I remember the blessings that were called down on the head of many a British gardener because he allowed procrastination to overcome him, and refrained from ordering seeds during the prevalence of a somewhat severe frost. The seedsmen kicked their toes on the sacks, hammered their hands on the counters, and prayed for orders that they might have work and warmth. However, prayers availed but little, the orders did not come until the weather changed, then there was a rush, as everyone wanted them complied with at once. Still the seedsmen were not satisfied, and the prayer changed to one for fresh air and sleep. Midnight found them slaving, and at six o'clock in the morning they were at it again. They were weary and worn and sad, and the remarks on the gardeners were numerous, pointed, and moreover just.

As was the case in my younger days, so it is now; and if it is possible for anyone to call attention to a class of men generally underpaid, and mostly overworked, in such manner as to improve their position in either respect, he certainly ought to do so. A few days ago I was in the seed department of a well-known and highly respected firm, and asked how orders were coming in. I was met with the expected reply, "Very slowly; the gardeners will not send their orders until the frost gives way, and then we shall be worked to death." I have been through the mill, and heartily sympathise with the numerous seedsmen who are so situated at the present time.

Why will not the gardener order his seeds early? No substantial reason can be adduced for what has become with many a mistaken practice which may tell against himself. "There is frost in the air and snow on the ground, and I cannot sow my seeds if I procure them, so I may as well wait a while until the weather takes a change." Pause and think of the possible consequences of "putting off till to-morrow." Think of the men who have your order to execute. Bear in mind that they cannot have the inestimable benefits of fresh air such as you have to maintain the all-important health and strength. Remember the loss

of health means loss of situation to the man in the seed trade, and there is no chance of more work for six months at the least. Take the war into your own country if you like, and speculate on the possibility of having to wait two or three weeks after despatching the order ere the package comes to hand. What does this mean? Is it not equivalent to lost, and might I add wasted time?—
VERBUM SAT SAPIENTI.



HAVANT CHRYSANTHEMUM SOCIETY.

THE annual show of this Society will be held on Tuesday and Wednesday, October 29th and 30th.

NATIONAL CHRYSANTHEMUM SOCIETY.

A MEETING of the General Committee of this Society was held on Monday evening last at Anderton's Hotel, when Mr. R. Ballantine presided. After the usual preliminary business of minutes and correspondence had been disposed of, the Secretary announced that all the judges nominated for the Society's three shows in October, November, and December next, had consented to act.

The report of the schedule sub-committee was then presented and passed. The draft report detailing the work of the Society, which will be more fully alluded to in our report of the annual meeting, was also submitted for approval, as well as the draft financial statement for the past year. Although the latter can scarcely be regarded as finally complete it is interesting to record that the total of the income for 1894 closely approaches the sum of £900, of which £246 1s. 9d. is members' subscriptions. Prize money paid to exhibitors, including the value of medals, was £413 6s. 6d.

Referring to the proposed alteration to rules as set forth in a circular distributed to the members, Mr. H. Briscoe-Ironside called attention to the suggested alteration in rule 3, line 6, which practically made the Vice-Presidents members of the Floral Committee. This was thought to be undesirable, as it might possibly have the effect of swamping the votes of the ordinary members who were experts, and after some discussion the meeting decided to withdraw the recommendation.

Some correspondence from New Zealand was read, showing the interest that is being taken in the Chrysanthemum there, and the opinion of the Committee was taken on the wording of one of the colonial schedules, in which the ambiguous term large-flowering varieties had caused some difficulty.

There were several new members elected, and the Windsor and Eton Society was admitted in affiliation.

The annual general meeting of the members of the above Society will take place at Anderton's Hotel, Fleet Street, E.C., on Monday, February 25th next, at 7 o'clock.

FERTILISATION OF THE CHRYSANTHEMUM.

MR. H. BRISCOE-IRONSIDE (page 79) tells us that the "point" of his communication to the Scientific Committee of the R.H.S. was not the question whether the Chrysanthemum is proterandrous or not, but "whether the Chrysanthemum is by nature self-fertilised or cross-fertilised." But surely there can exist no doubt whatever that the Chrysanthemum is, in nature, both self-fertilised and cross-fertilised, the comparative frequency of the two processes depending largely on the character of the insect life in the particular locality. It scarcely required the confirmation of a scientific committee to assure us of that.

I note that Mr. Ironside does not apparently contest the assertion that the Chrysanthemum is proterandrous, although the paragraph of the report which I quoted, and again append, seemed certainly to suggest a doubt on the subject. Page 78, "It had been thought by some writers, following Darwin a little too implicitly perhaps, that 'the anthers of the Chrysanthemum . . . as of all members of the Compositæ . . . are proterandrous . . . and naturally adapted for cross-fertilisation'—(Burbidge)." I think that those who aim at a scientific cross-fertilisation of the Chrysanthemum cannot follow Darwin and Burbidge too "implicitly" on the point referred to.—
CHARLES E. SHEA.

NOMENCLATURE AT CHRYSANTHEMUM SHOWS.

I WONDER what "An Old Judge" would think (who wrote on nomenclature at shows some time ago) of the Chrysanthemum show of a leading society, where, in the matter of labelling cut blooms no system whatever prevails, and exhibitors finding themselves fancy free, make use and choice of material, from tiny slips hidden amongst the blooms to large square envelopes displayed at the front or back of their stands? About two seasons since I was honoured by an invitation to make any suggestions tending to improve the framing of this Society's schedule. Being duly affected by the incongruities presented by this heterogeneous labelling, I ventured, amongst other things, to call their attention to this point, suggesting that they (the Society) might provide

an adhesive label of a uniform pattern, supplying each intending exhibitor according to his requirements. The cost would be but trifling compared to the all-round benefit it would confer.

If such a label was neatly outlined, and the space ruled for text, but little margin for absurdities in this part of the question could exist, provided a society insisted on their use. Affixing on the front of the stands is doubtless the simplest way, but not practicable in all cases. For elevating on supports at the back pieces of cardboard, or, better still, zinc cut to the pattern of the label for adhering to it, would give equal facility, and the same pattern labels thus used should meet all the requirements of plants and fruits, as well as cut blooms.

I think those exhibitors who take pride in their stands are loth to place the names amongst the blooms, for it cannot escape their notice how much such stands suffer at the hands of "an interested public in their endeavour to arrive at particulars they are anxious to know, and whose right it is to thus ferret out their information at the exhibitor's cost when he compels them to do so. Give the public the advantage of legibly written, conspicuously placed labels, then, and not till then, can societies and exhibitors join in the cry, "Hands off, visitors."

The want of a system also tends to confusion with the uninitiated taking notes amongst the florists' flowers, nor could it be otherwise with the diverse methods employed by exhibitors. I may add that my idea is an elastic one, and capable of stretching either way, provided that the necessity of a general system, protected by a rule in the schedule, is not lost sight of.—E. K.

ANEMONE-FLOWERED CHRYSANTHEMUMS.

I WAS pleased to hear the remarks in defence of this beautiful section of Chrysanthemums by H. Harris (page 120). Why they should be looked on with so little favour has always been a puzzle to me, for we have certainly nothing amongst the whole range of Chrysanthemums calculated to stir up more admiration than well-grown flowers of Anemone varieties. What can be more charming than the chaste Fleur de Marie, the light rose ray florets and sulphur-tipped disc of Enterprise, the primrose guard petals with deep yellow disc of John Bunyan, or the salmon-blush guard petals and golden rose-coloured disc of W. W. Astor?

As a grower and ardent admirer of them I feel certain that we must ere long see them figuring prominently in every schedule in the kingdom, as being equal to hold their own against Incurved, Japanese, or Reflexed, and I venture to say that with just as much—if not more—delight to those who visit our exhibitions. Damp seems to affect them to a slight degree, whilst for decorative purposes, associated with foliage or Maidenhair Fern, they form a pleasing break, not by their striking contrast alone, but by lasting qualities.

The present being a good time to order varieties, I can thoroughly recommend the following in addition to the above mentioned:—Ada Strickland, a rich chestnut-red colour with broad ray petals; Duchess of Westminster, silvery-blush guard petals with rosy bronze disc; Jeanne Marty, a large flower, blush-coloured petals with deeper disc; La Deuil, crimson-purple; Madame Charles Lebocqz, citron-yellow with carmine tint; Madame Robert Owen, pure white; Mons. Pancoucke, orange-red, very handsome; Mrs. Judge Benedict, white, changing to blush guard petals with high lemon centre; and Nelson, deep rosy violet. Judge Hoitt, Sir W. Raleigh, Queen Elizabeth, and several others of last year's introduction will have to be tried again before an opinion as to their merits can be expressed. The new varieties which are being sent out in the spring are Caledonia, Owen's Perfection, Junon, and Descartes, the three former being fully described in the Journal of November 8th, page 428.—R. P. R.

THE "CHRYSANTHEMUM YEAR BOOK."

AS the Editor of this new venture on the part of the N.C.S. may I be permitted to point out to your correspondent, "Fairplay" (p. 120), that the pseudonym under which he attempts to hide his identity is singularly inappropriate? The heading of his complaint and the first two lines seem to suggest a criticism of the book as a whole, but further acquaintance with his effusion very plainly shows that the object of "Fairplay" is to attack one contributor only.

It may be useful to point out to such of your readers as have not seen the "Year Book" that it contains twenty-four articles in all. Some of them necessarily refer to the work of the N.C.S. during the past season, others to the work of kindred societies that are doing good service in Chrysanthemum matters, while another class of contribution deals with the aspects of the flower in America, in Italy, and in Japan. This, I venture to assert, is a broader programme that has ever been adopted in any similar publication, and is a sufficient guarantee that the book, the joint work of fifteen or sixteen writers of acknowledged authority, has not been written by those who seek to advance trade interests.

In another class of article, which may be referred to as descriptive, is one by Mr. Jones of Lewisham, and it is this which "Fairplay" seems to have analysed so keenly, and as I shall show so unfairly. What a novelty is depends on individual opinion, but in the paper by Mr. Jones he mentions and describes fifty-four varieties of Japanese of recent introduction. These are the product of twenty-two different raisers, English, French, and American, and the following is the result:—Mons. Calvat, twelve varieties; Messrs. Pitcher & Manda, eight; Messrs. C. E. Shea and R. Owen, four; Messrs. Walz and Lacroix, three; Messrs. Spaulding, E. G. Hill & Son, Kelly, and H. J. Jones, two; and Messrs. Carruthers, Sautel, W. Wells, Délaux, Atkinson, Godfrey, Cox, Smith & Son, H. Briscoe-Ironside, Crozy, Graham, and unknown, one.

So, too, with the illustrations of flowers. These are five exhibition Japanese, one of Scotch origin, one of English, and three American, but in the place of one of the latter there would have been one French variety for completeness, only the photograph was such that the engraver could not use it.

"Fairplay" need be under no apprehension as to the "Year Book" not being of substantial value. The article on the Kingston challenge vases, the statistical information of the November show, the lists of certificated varieties and medals awarded, to say nothing of the others of a more varied nature, will insure its value for many years to come.—C. HARMAN PAYNE.

I THINK the same as "Fairplay," there is something very misleading in the article (page 67) headed "Japanese Novelties for 1895," for if the three continental varieties priced at 30fr. each, and which do not appear in any English catalogues are excluded, there are not a dozen 1895 varieties, all the rest being 1892, 3, and 4 varieties. So there are about forty varieties to misdirect the public, and this from one of the most prominent members of the N.C.S. The whole article is more like a trade advertisement than an article for a National Society's annual.—ANOTHER FAIRPLAY.

LIVERPOOL NOTES.

At the last meeting of the Liverpool Horticultural Association Mr. William Blomily, a noted cultivator, read a paper on greenhouse plants, devoting attention to the following among others:—

KALOSANTHES.

These were recommended to be raised from June to August, selecting shoots with three or more growths, and placing them in sandy soil in a cool frame kept somewhat close and shaded on very hot days. If large specimens are wanted in the shortest space of time five or six plants should be placed in each pot, using a compost of fibrous loam, leaf mould, charcoal, and sand, and kept up near the glass in a greenhouse. Pinch out the points when they have made 3 inches of growth. In February they should again be pinched and potting done as required, syringing and watering carefully during the summer, giving the last shift not later than August, still keeping the plants near the glass, with attention to having the shoots tied into position. After flowering they may be placed outside, the shoots being pruned back to about 2 inches in length, the same routine of treatment being recommended when they break into growth.

LACHENALIAS.

These were described as amongst the most useful of greenhouse flowering bulbous plants, but sadly neglected. For early work he advised potting in August and September, placing ten bulbs in a 6-inch pot in a compost of good loam, spent Mushroom bed refuse, and sand. After potting stand in a cold frame, where they may be left until severe weather is expected, then be removed to a greenhouse shelf, giving liberal supplies of weak liquid manure as the pots become filled with roots. After flowering remove again to a cool frame until the bulbs show signs of resting, when the pots may be placed on their sides for the season. Mr. Blomily specially mentioned the latter as being of great importance, many collections being lost by placing them outside exposed to all weathers.

STATICES.

These, he said, would not bear strong sunshine. Cuttings should be taken with a heel, inserted in sandy soil and sand, and placed in a propagating frame. When rooted pot in three parts loam and one of peat, with silver sand, placing them on a greenhouse shelf, the temperature of which should not fall below 45°. Potting should be done in March, and the plants syringed every afternoon all through the summer. Varieties mentioned as being the best were profusa, Holfordi, imbricata, and brassicæfolia.

An interesting discussion followed, Mr. Stoney remarking on the beauty of Lachenalias for growing in baskets, the variety Nelsoni being the best. A question was asked by Mr. R. Pinnington regarding the inability of Statice floribunda to open its flowers sufficiently, this being a great drawback to its ever becoming popular. Mr. Devanny, Botanic Gardens, stated that he had never seen a plant with flowers fully developed, all being in the state referred to by Mr. Pinnington.—R. P. R.

RAISING PEAS UNDER GLASS.

UNDER the above heading your correspondent, "A. D." (page 92), advocates boxes, and I fully agree with him, but I do not agree with the way he describes of making them. I enclose a sketch that I think will almost explain itself, and anyone thinking of making boxes would find a good deal of trouble saved in the operation of planting if they had them made as advised below. It will be seen that the bottom is loose, and is simply slid in and rested on the two strips of iron or wood. To plant a trench is made, a box is placed in the end, the bottom drawn out, and the box is lifted straight up. The bottom being wider than the top allows the mass of soil with the Peas in to drop out and remain intact in the trench. All that then remains to be done is to draw the soil up to them on both sides; this is repeated to the end of the trench.

A handy and useful size would be 2 feet long, 3 inches wide at the

top, 4 inches at the bottom, and the same in depth, inside measure. The ends should be made of wood 1 inch or $\frac{3}{4}$ inch thick, and cut to the size named. The sides may be made of $\frac{1}{2}$ -inch wood, and for the bottom $\frac{1}{2}$ or $\frac{3}{4}$ will be quite strong enough, and should answer without any additional support. The best support for the bottom would be irons $\frac{3}{4}$ inch wide, $\frac{1}{4}$ inch thick, and bent to shape with two or three holes for nails or screws, as shown in fig. 31. They would then go through the sides and into the thick wood of the ends. The bottom should be made 2 or 3 inches longer than the sides to enable anyone to draw it out from either end, and it should be made to slip in very easily, as in watering the Peas the wood will swell and make it difficult to draw out. A handy man would soon make a number out of old packing cases, which are usually to be had on a gentleman's place, and if taken care of they would last several seasons.

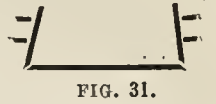


FIG. 31.

Fig. 32 shows a portion of the box at one end. A A are the sides of the box; B, the end; C, bottom partly drawn out; D, narrow strip of wood or iron, the same width as the thickness of wood in the end of the

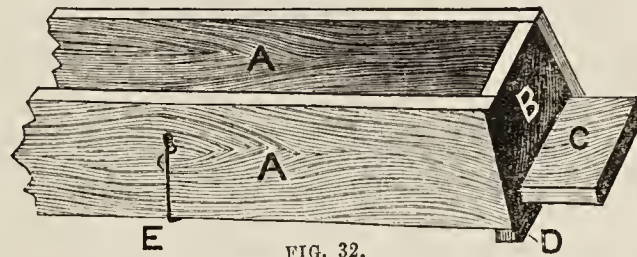


FIG. 32.

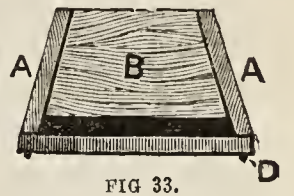


FIG. 33.

box, one of these at each end supports the bottom; E, shows how extra support may be given to the bottom, if required, by two nails and a piece of string. Fig. 33 shows the box endways.—W. S. E.

APPEAL JUDGES.

It is said that there are none so blind as those who will not see. I thought that I had made it sufficiently plain, in my former letters, that what I proposed was only to allow exhibitors to appeal under well-defined conditions, that the reserve judge or judges were only to be called in if any of the decisions of the first set of judges were appealed against, to decide in these cases alone. "A. D." and "G. McD." (page 123) seem to think that my proposal is that the appeal judge or judges are to review or overlook all the decisions of the first set of judges. I cannot for the life of me see that my proposal can bring about such a dreadful state of matters as is conjured up.

"G. McD." says that he has always found judges willing to review their own judgment. This is a most objectionable practice. I know a society, and if I am not mistaken "G. McD." knows something about it also, where this is sometimes done. This society embraces a wide district, and as the meetings are always held at night in the county town, the members in the immediate neighbourhood get themselves appointed to assist the judges, and see if things are going on as they would like. A case happened a few years ago at one of these gatherings which shows what can be done. Prizes were offered for a special variety of Apples. After the prizes had been awarded the judges were told by an exhibitor that the Apples to which they had adjudged the first prize were not the variety specified in the schedule. The judges then reversed their decisions, giving the complaining exhibitor the first prize, and the dish which should have been disqualified, if his statement was true, the second.

"G. McD." asks me if I would be willing to act as one of the first set of judges. I say yes, and I cannot see why any person who gives his opinion honestly need care who comes after him. I have had experience in judging at cattle shows, flower shows, and ploughing matches, and sometimes have had very great difficulty in preventing my coadjutors making mistakes that they ought to have been ashamed of.—C. K.

[We insert the above letter, though we are unable to see what good can be done by further discussion on the present lines. In both the cases animadverted on by our correspondent the responsible managers were at fault. In the first instance in two respects: (a) by appointing judges who required to be looked after; (b) by allowing a person interested in the awards to be present during the adjudication. In the second instance, if "C. K." is correct, in appointing judges who were obviously unfit for the position they occupied. No horticultural societies in which such loose methods prevail are worthy of the name, and it is impossible that they can command the respect of the gardening community.

Judges must not only be men of unquestionable probity, but of admitted competency, and in our experience, which is not very limited, these are the very men who are the most ready to re-examine any class to which their attention may be directed by the officials on the possibility of some point having been accidentally overlooked; because the only object of independent and unbiassed judges is to do strict justice, and they never give a thought about the exhibitors whose products are in question.

The most flourishing societies and those which enjoy to the fullest

extent public confidence are those the responsible officials of which strive to procure the aid of the best judges obtainable for the different sections of their exhibitions, and if the "best" are secured, these being undeterred by any false pride or captious remarks from re-examining their own work if it should be thought desirable, where are appeal judges to come from? There can be no better than the best—judges of the first class, though there is no lack of others much less experienced who feel themselves competent to alter half the awards in one-quarter the time that it took their seniors to make them.

In the case of the great and varied exhibitions of our most successful societies complaints about the judging are extremely rare, and if made are still more rarely substantiated. The procedure is based on the principle of securing judges of irreproachable integrity and acknowledged competency, their decisions being final; and we are bound to say that in our opinion any departure from this principle would sooner or later lead to disquietude, distrust, and dissatisfaction, the certain precursors of loss of prestige and eventual collapse.]



ELTHAM ROSE SHOW.

THE annual show of this Society will be held on Thursday July 4th, 1895.

SOIL FOR YOUNG ROSES IN POTS.

AT this season we are more or less busy in potting our young Roses from the grafting case, and having lost, or at any rate checked a good many at different times through using too rich a soil, a few practical hints may be of some service. Our chief aim until the young plants are in 3-inch pots is to secure a number of healthy roots. If these grow freely the sap is abundant, and the graft not only unites firmly but pushes into promising growth at once. We need healthy roots later on also, but then they must be fed to a greater extent than in the younger stages.

Beginners are often too anxious to give their plants a rich and concentrated soil, but it is better to wait until the plant has greater need of this. Turfy loam with a dash of sand, or any good garden loam and leaf soil in equal proportions, is best for Roses at this stage. We find the new roots taking to this at once, and producing those thick and succulent rootlets that must result in healthy and rapid wood growth. A richer soil does not encourage these to the same extent, in fact rather the reverse. Breaking the compost up too finely is also a mistake. If we use it in a coarser condition the roots can pick and choose to a certain extent from the variety of food supplied, and a little observation will prove this, whether we take a pot plant or one growing in the open ground. On turning the former out of the pot, or carefully lifting the latter, we shall find the roots have thoroughly permeated one or other of the component portions of the compost, and, comparatively speaking, avoided the remainder. Much of the first strength of the latter will be imparted to the poorer soil, and as this is lessened, and our Rose roots become more eager or hungry for the richer food, they will take this in due course.

If potted firmly there is no fear of too rapid percolation of water and its consequent washing away of any valuable soluble constituents contained in the soil. In pots we cannot give our Roses enough room to allow of their roots searching for and choosing their food, but we may approach this nearer than many do. While in the open, and also in borders under glass, there is no drawback to follow this plan, and I am certain it is a good one from the results which have been derived from it.—PRACTICE.

SMILAX.

I AM acquainted with no plant that is more useful than this. It is equally well fitted for decorating dinner tables during every season of the year, and for lending added grace to arrangements of cut flowers in vases. For wreath-making it is also very useful; indeed, I have constructed wreaths of choice flowers and Smilax without using any other kind of foliage.

Fortunately the cultural requirements of this plant are easy to meet. It grows well under a shade of foliage where few other plants would succeed. The present time is most suitable to sow seeds, and if a high temperature can be given the seedlings are not long germinating. If a very sandy compost is used there will be no difficulty in securing fibrous roots by the time the plants have grown sufficiently large to transplant. I have tried them on the back wall of a stove, but the temperature was too hot. Close to the back wall of a late vinery seems to suit them better than houses in which there is more heat. As to soil, they are not at all particular. Two years ago a lad planted Smilax in one house among a layer of gravel. Strange to say the largest and finest foliage has been produced from these. Indeed, so robust did they grow that they were quite unfitted for using on a table, though for other purposes they proved most useful.

At the time of planting a piece of strong thread for each plant is

secured to the top wire of each vinery and fastened at the bottom to a strong peg driven into the soil close to the plant. Further than this no attention to training is called for, unless it may be in cases where single-stemmed plants are wanted, then it is necessary to nip out any twin shoots that may appear. Single stems, it may be noted, are superior for table or for vase-furnishing. At no season is this plant prettier than in the spring. Wreaths 15 feet in length are then covered with their pretty white blossoms, excelling in beauty the plants when adorned with nothing but leaves. I keep a supply to provide for the London season, and these always flower freely and set most abundant crops of seeds. There is thus no difficulty in securing from the same set of plants others to keep up a supply year after year. Two-year-old plants become bushy, and are, on that account, not so valuable as one-year seedlings. I have tried two-year-old plants in pots for decorating, but did not find them of so much use as those grown as noted above. R. P. BROTHERSTON.

REDUCTION OF THE VARIETIES OF APPLES AND PEARS.

CAN our varieties of Apples and Pears be reduced with advantage, and what is about the number of varieties we should grow? If you ask the first part of this question of any fruit grower or horticultural authority nine out of ten would answer "Yes." But this is a more difficult question than appears on the face of it. Each of these persons answers truthfully from his own view of the question, but there are so many standpoints from which you can look at it. There is the grower for market; there is the farmer who has various other agricultural pursuits; there is the grower who grows only for his own consumption; there is the grower who takes a pride in his fruit and likes to exhibit it occasionally; and there is also the one who makes a hobby of fruit growing. These growers are again subdivided into the growers of the north, the south, the west, and the east of Great Britain and Ireland, and to these I may add the nurseryman who supplies the trees, both the man who does a local trade chiefly and the one whose trade extends through all the localities. I believe if a general census was taken of the opinion of the growers named throughout the United Kingdom as to which are the best ten varieties of Apples or ten varieties of Pears a very large number, perhaps a hundred or more, would be named between them all. I propose to take each of the classes of growers I have named, and say a few words as to the position in which each grower stands in regard to number of varieties and about the quantity I think best cultivated by him.

I will first take the grower for market, whose sole object is to make fruit growing profitable. I say to this grower, Do not grow too many varieties; plant a good bulk of the few you select, so that it may pay you to pick and market each sort in bulk. Find out from your own or neighbours' experience what varieties do best on your soil and in your locality; find out what sorts sell best in your most convenient market, and plant these largely. On the other hand, you can confine your sorts too strictly; it is astonishing how varieties vary as to cropping in different seasons. The blooming time of different varieties of Apples and Pears varies greatly, some varieties blooming early, others late, and we sometimes have early frosts, sometimes late; the consequence is that a variety which crops heavily in one season does not do so in another, and you are sometimes astonished to find a usually shy cropper give a heavy yield in a scarce year; the crop greatly depends upon whether the variety is in blossom at the time the frost comes.

I believe there is another reason for having a little admixture of sorts, say in adjoining rows. Some varieties are not sufficiently self-fertilising to grow in a large block and crop well, but are benefited by being grown near other varieties. The Americans, I believe, have found this out and act on it largely. A grower for market should have a good bulk of early varieties, a few midseason varieties, and a quantity of late varieties. I think, as a rule, early and late varieties pay the best. Some years the early varieties will pay the best, in others the late varieties, but the midseason sorts being more numerous, and meeting more foreign competition, usually pay the worst. A grower for market does not often require to exceed eight to twelve varieties to grow in quantity; but he must not forget that there may be a new or little known variety suitable to his locality which may prove of great value. I say try these on a small scale first, and if you find they answer your requirements grow them more largely. In growing for market do not be guided entirely by what looks most attractive on the exhibition table; some of the best there are for one reason or another not the best to grow for market.

There is next the farmer who has various other agricultural pursuits; to him I again say, "Do not grow too many sorts," and the remarks I make in reference to the grower for market to a great extent apply to the farmer, but it does not follow that he should grow the same varieties. The average farmer has seldom the skill, aptitude, or time to devote to the cultivation of very choice varieties of fruit; he usually wants hardy, good growing, and heavy cropping sorts, suitable to grow as standards. He should grow about the same number of varieties as the market grower.

There is then the grower who grows for his own consumption. He can extend his list, because he wants both dessert and cooking varieties to extend over as long a season as possible; he does not care to have a

glut of one variety and then a scarcity. Tastes vary; some people like a soft spicy fleshed Apple, whilst others will prefer a brisk, crisp Apple. The cook for one purpose wants an Apple which cooks white and flaky, and for another one with highly coloured flesh which goes to a jelly when cooked. These requirements must be met. There is also the grower who likes to have an extra fine dish for exhibition, to show to his friends, or place on his table, and who takes a pride in growing extra fine fruit. He does not care so much about the cost of this fruit, so that he has something better than his neighbours; he wants large handsome fruit, new varieties of high reputation, or well-known sorts of high quality to be successful on the exhibition table, and, as I said before, some of the most suitable for his purpose are not the best for others.

I now come to the gentleman who makes a hobby of fruit growing. I believe there is such a thing as finding a pleasure in fruit growing independent of profit. Does the grower of flowers (Chrysanthemums, Roses, Dahlias, Carnations, and others) think of profit altogether? Such a grower takes a pleasure in testing the different varieties, noting their behaviour in different seasons and on different soils, watching their various colours and different styles of growth, and likes to test the new varieties or those unknown to him. I say to such a grower, who has his heart in the work, a trial fruit plantation is a fount of pleasure, where he will probably grow a large number of varieties, and I do not think he should be blamed, for, on the contrary, he may greatly benefit the neighbourhood, as he it is who usually introduces or brings into notice new or little known fruits of high merit, and his plantations are in a great degree educational. These growers are necessarily subdivided into those who grow collections of fruit in various parts of the United Kingdom. One particular variety may be popular in the north, but of little value in the south; one thought highly of in the midlands hardly heard of in the west.

To show how even the opinions of our best authorities can differ, one of our greatest fruit experts in the south (Mr. George Bunyard) lately read a paper on "New *versus* Old Apples," and amongst the old sorts he mentions which should be discarded is "Tom Putt" and "Catshead Codlin." We, with other growers in the west, consider "Tom Putt" one of the most useful and most popular of farmers' Apples; and as regards the old "Catshead," I know old standard trees of this variety which pay the growers better than any others they possess, and I have had more people ask for the fruit of this variety than any late Apple I grow except "Dumelow's Seedling." The value of Apples also varies greatly in different markets; for instance, the "Wyken Pippin" is one of the most popular and best selling Apples in Birmingham, but it would hardly be looked at in most other markets. Again, our best dessert Apple, "Cox's Orange Pippin," if sent to the Manchester and north of England markets (where it is not yet sufficiently known) would make a very much lower price than it does in Covent Garden Market, where its good qualities have become appreciated. Then, again, highly coloured Apples sell best in some markets; larger green Apples sell better in others.

The Americans have often been quoted as sending us a few sorts, and the general impression seems to be that they cultivate very few varieties, but this is a mistake. One of the chief fruit tree nursery firms in the United States, whose catalogue I have, enumerates over 130 varieties of Apples. I have also had a list sent me of the names of the varieties cultivated by a gentleman in the States who has established an experimental orchard, chiefly for educational purposes; he grows upwards of 900 varieties of Apples, and the greater part of these are not known in England. The Americans cultivate as many sorts as we do, but they send us only a few of them which they know suit our markets.

I will say a few words in reference to new varieties of fruits. We can in fruit growing improve our varieties, as well as the farmer can improve his breeds of live stock or his varieties of corn, and we are always looking out for the best. There is no doubt that some of the fruits lately introduced will prove of high merit and take a leading position in our lists. On the other hand, we as nurserymen cannot be too careful in introducing varieties which are not better for any purpose or are inferior to existing varieties. A new fruit as a rule does as well or better in the district of its origin than it does in any other district. Most nurserymen would welcome a reduction in the number of varieties they have to grow, with the attendant reduction of trouble and expense in keeping all these varieties separate and true to name, but as long as the growers ask for particular varieties we are bound to supply them. To the nurseryman who only does a local trade the answer is easy as to how many sorts he shall grow, for if he knows his business he knows those which are most in demand in his district; but a nurseryman who caters for a trade over a wide area and amongst all classes of growers is bound to cultivate a large number of varieties. A customer who cannot get the variety he wants at one nursery, will not only go to another nursery for this variety but will probably take more of his trade there also. I cultivate as many varieties as most nurserymen, but out of the large number I grow I am sometimes asked for one now and then which I do not possess. Nurserymen, then, must not be blamed for the large number of varieties they offer; when the growers stop asking for them the nurserymen will soon stop growing them. In conclusion, I will offer my own opinion as a nurseryman, as a grower for market, and as one who

perhaps makes a hobby of fruit growing. It is this: I think there are many varieties, superseded, of little value and which can be dispensed with, and I think our lists would be better cut down to a great extent, the limit of which rests with the growers, but I do not think the varieties of Apples and Pears grown will ever be reduced to the narrow limits which some people think they ought to be.—JOHN WATKINS, *Pomona Farm Nurseries, Herefordshire.*—(*Fruit Conference Paper.*)

THE SEVERE WEATHER.

MANY reports have been recently sent to us from all parts of the country relating to the arctic weather by which we have been visited. In almost every shire the thermometer has fallen below zero. The disastrous results of this we have yet to learn, but former experience tells us that in many respects it must prove serious. For the interest of our readers we herewith insert a few of the reports that have reached us, by which it will be seen how general and severe the weather has been.

SUCH is the effect of the frost that several large Elm trees of 100 years' growth have split, the cleft in each case being from the ground to the height of from 10 to 15 feet, and fully 6 inches into the side of the tree.—JOHN J. EMERSON, *Easby Hall, Great Aytoun.*

WE have now had about seven weeks of severe weather, and the temperature on the 8th and 9th inst. fell 40° below freezing point; 10th, 37°; 11th, 32°; 12th, 20°; and 13th, 32°. In each case the thermometer was placed 18 inches from the ground, and the readings were taken from 8 to 9 A.M.—JOHN BROWN, *Delgaty Castle Gardens.*

ONLY on six nights since the new year has the thermometer stood above freezing point, and only on one occasion since the 1st February has the night temperature been higher than 30°, or 2° of frost. On the 7th the mercury was down to zero, and on the 8th 2° below zero; on the 9th and 10th, 28°; and on the 11th, 17°. There has been an average depth of 3 inches of snow for several days, and the ice on the lake is 8 inches thick.—G. R. ALLIS, *Old Warden Park, Biggleswade, Beds.*

WE have experienced an unusually cold week, the temperature being as follows:—February 5th, 24° of frost; 6th, 30°; 7th, 29°; 8th, 27°; 9th, 25°; or a total of 135° on five nights.—W. STANTON, *Caddington Hall Gardens, Bedford.*

THE greatest amount of frost registered in our gardens during the present month has been as follows:—6th, 27°; 7th, 32°; 8th, 34°; 9th, 30°; 12th, 23°; 13th, 26°.—ROBERT JORDAN, *Llanaway Gardens, Godalming, Surrey.*

THE frost here for the seven consecutive days, from February 7th to February 14th inclusive, was 257°, or within a fraction of 37° of frost for each day, the lowest being 40°, and the highest 25° below freezing. Do any of your correspondents know of any previous week that has given more frost in this country?—D. THOMSON, *Drumlanrig Gardens.*

THE reading of the thermometer here has been—February 5th, 11°; 6th, 18°; 7th, 13°; 8th, 34°; 9th, 27°; 10th, 34°; 11th, 30°.—WM. FELL AND CO., *Wentworth Nurseries, Hexham.*

THE thermometer registered here on the 8th inst. 10° below zero, or 42° of frost. The glass is 2 feet from the ground, and is placed 10 feet to the south of a brick wall.—ED. KEITH, *Wallington Gardens, Cambs, Northumberland.*

A FEW notes respecting the weather and the temperature taken here from the 6th inst. up to 13th:—6th, 24°; 7th, 22°; 8th, 45°; 9th, 32°; 10th, 40°; 11th, 28°; 12th, 20°; 13th, 31°. These temperatures have been taken in an exposed position, with the thermometer on a board close to the snow line. In two other positions wide apart from each other and very much sheltered, the thermometers at 4 feet from the ground, the readings have been just 5° above these figures, all taken from Negretti & Zambra's minimum thermometers. It is now rather more than six weeks from the 31st of December that the ground here has been quite covered with snow. At present it is about 7 inches deep, though none has fallen for a week.—H. E. GRIBBLE, *Wynyard Park Gardens, Stockton-on-Tees.*

ON the 7th inst. the thermometer registered 28° of frost, falling on Friday morning to 8° below zero. A great number of Oak trees are split with the intense frost from the ground upwards, the splits being all on the north and north-east side of the trees.—A. BENTLEY, *Eshwood Hall Gardens, Durham.*

THE amount of frost registered on February 2nd was 13°; 3rd, 22°; 4th, 17°; 5th, 24°; 6th, 27°; 7th, 23°; 8th, 22°; 9th, 20°.—R. BASSIL, *King's Ride, Aseot.*

THE weather here, as well as at other places more distant from London, has been exceptionally severe. On February 6th there were 19° of frost; 7th, 27°; 8th, 32°; 9th and 10th, 24°. Since 1889 we have only registered more than 20° of frost four times.—JAS. CARTER AND CO., *Nurseries, Perry Hill, S.E.*

APPLE ROUNDWAY MAGNUM BONUM FOR DESSERT.

SOME time ago Mr. George Bunyard expressed his opinion on this Apple, and it was very laudatory. He described it as the best of all winter dessert Apples, having regard to its size, tenderness of flesh, sweetness, and flavour. Mr. Bunyard recently sent us a few fruits of this Apple, and though they are not handsome in appearance, we have none to equal them in quality at the present time. We append a description of the Roundway Magnum Bonum from the "Fruit Manual":—"Fruit, large; ovate, angular on the sides, having five prominent ribs, which extend into the basin of the eye and form ridges round the crown. Skin, lemon yellow, with a few broad broken streaks of pale crimson on one side; it is here and there marked with several russet patches. Eye, half open, with flat convergent segments that are reflexed at the tips, and set in a narrow basin. Stamens, basal; tube, conical. Stalk, about half an inch long, very stout, and inserted in a pretty deep cavity. Flesh, yellowish white, tender, crisp, very juicy, and with a fine aroma. Cells, obovate; axile. A first-rate culinary or dessert Apple, very solid and heavy for its size; in use till April without shrivelling. This was raised at Roundway Park, near Devizes, and was first exhibited at the Royal Horticultural Society in 1864, when it received a first-class certificate."

Mr. Bunyard at the same time sent a fruit of a new Australian Apple Duke of York—a tender-fleshed culinary Apple, of good size, faultless in symmetry, and very handsome. This variety, we believe, is being increased at Maidstone, as likely to become a popular favourite.



HARDY FRUIT GARDEN.

Pruning Cob Nuts and Filberts.—Young Plants.—Suckers planted in the autumn having one strong stem only may have that reduced to a length of 18 inches. Six of the upper buds, if as many push strongly, should be selected and trained outwards to form a good preliminary groundwork for a well-shaped bush. Plants of more weakly habit may only have three shoots reserved, these being the strongest and best placed towards the upper part of the shortened stem. Train the shoots round a hoop placed in the centre, which will press them outwards and give the desirable cup-shaped form of bush, the growths being secured at equal distances apart. At the next winter pruning each shoot must be pruned back to a length of 4 inches, and two growths afterwards encouraged from each. In the case of plants starting with three shoots, the following year they will have six, the next twelve, enough to form main branches for an ordinary sized bush 5 or 6 feet in height. The pruning during the extension of the branches consists of annually shortening the leaders to strengthen the main branches and induce the formation of side shoots for fruiting.

Pruning Established Bushes.—When the branches have extended as far as desirable the leaders must be shortened closely each year at the winter pruning, and any that produce very strong leading shoots should have these topped in the summer. The side shoots are managed variously. Some may be cut back to two or three buds, these giving successional shoots which, if not growing too strongly, assume a fruitful character, blossom buds forming at the extremities both on these and shorter twiggy growths, also spurs. Shoots that produce numbers of catkins or male blossoms must be left freely distributed over the trees, but if such are not plentiful procure catkins from other Nut trees or the common Hazel, and hang them over the female blossoms to aid fertilisation.

Time to Prune.—The proper time to prune Cob Nuts and Filberts varies according to the season. If early the staminate blossom buds may appear prominent at the end of January and during February, but March is the proper month. Fruit buds are easily recognisable from wood buds by reason of their scaly character, and as they become fully developed the crimson styles protrude from the flowers. The blossoms or catkins are very conspicuous and develop first. They are pendulous in habit and brush-like in appearance, shedding when shaken a quantity of pale yellow pollen, which it is important should reach the fully formed fruit blossoms. This is the best time to prune, as no mistake can be made, and long side shoots or laterals may be pruned to blossom buds.

General Pruning.—Many Nut trees are not grown on the restrictive method, and with these it will be advisable to regulate the growth so as to admit light and air freely to every branch. Old, useless growth must be removed, weakly and crowded wood or spurs cut or thinned out. On severely pruned branches spurs often extend too far; these should be reduced in length, a few every year. The old bearing wood of the previous year may be freely shortened back. Old exhausted branches sometimes need renewing, and this can readily be accomplished by reserving a promising growth near the base, training and pruning this several years if necessary before cutting out the old one. Large overgrown bushes may be reduced in height when desired by shortening to well situated lower growths. Remove suckers where they appear between the bushes.

Pruning Outdoor Fig Trees.—Fig trees on outside walls, protected by mats or dry fern from the severity of the weather, may be gradually uncovered after the frost. Cut any decayed or injured wood away before training. Fasten the main branches to the wall or trellis, distributing them equally. Lay in all the best placed young growths of the previous summer's formation, leaving them unshortened. Those not well placed, and apparently superfluous, cut out entirely.

Completing Pruning and Regulating Wall Trees.—The conclusion of this work should be hastened, as buds will shortly be actively swelling. Worn out or useless branches are best cut out before fresh growth commences. Their removal causes a gap, or several bare spaces, which must be filled up by re-arranging the remaining branches. Take the opportunity of thinning out crowded wood at the same time. All wall trees are apparently thinly trained at this season, being leafless, but with many formally trained examples the branches are really too close. With espaliers, cordons, bush trees, and pyramids a good distance for the mains is a foot. For Gooseberries and Currants on walls 8 or 9 inches. As a rule it is better to have the branches too thinly disposed than the opposite.

Training Young Trees.—Wall trees planted in autumn and temporarily fastened to the wall to allow the newly moved soil to subside and the trees along with it, may now be permanently secured, the required pruning back of the branches being carried out as the buds swell.

Disposal of Prunings.—The end of the winter pruning season affords a good opportunity for clearing away and burning the accumulated trimmings from trees and bushes. The ashes and charcoal resulting are admirably suited for mixing with the compost for top-dressing borders, or they may be utilised when preparing the ground for a fresh plantation of fruit trees, and a quantity can be incorporated with the material used for spreading among the roots when laying them out in the process of planting. Roots take readily to wood ashes, and as they contain potash most fruit trees are benefited by the use of them in the soil.

FRUIT FORCING.

Peaches and Nectarines.—Earliest Forced House.—This may be a structure containing trees of the second early or midseason varieties of Peaches and Nectarines, such as Hales' Early, Stirling Castle, and Royal George Peaches, Hunt's Tawny, Lord Napier, and Elruge Nectarines, which, started in December, will not ripen their fruit until May; or a house occupied by the very early varieties, such as Alexander, Waterloo, and Early Louise Peaches, Early Rivers and Advance Nectarines, that started at the same time will ripen their fruit in April. The trees must be syringed every morning and afternoon during sunny weather to check red spider. If, however, the weather be dull the syringing must be practised early in the afternoon, so that the trees may become fairly dry before night, or if that does not take place the afternoon syringing ought to be dispensed with, damping the paths and borders instead, as keeping the trees dripping with water through the night causes weak growth and thin foliage.

Water inside borders as required, using liquid manure, which will assist the trees in swelling the fruit, especially in the case of weakly trees long subjected to forcing. Healthy trees will not require any active stimulants, excessive vigour being unfavourable to the fruit safely passing the stoning process. Such trees will be assisted by a dressing of basic slag phosphate, using about 4 ozs. per square yard, and washing-in with water. When the fruit is about the size of small marbles thinning may proceed, the growths up to this not being overburdened by a superfluous number of fruits beyond those required for choice being made, as thinning should commence when the fruit is about the size of horse beans, then leaving two or three of the best in promise and place on a bearing shoot, in all cases removing a few fruits only at a time, and reserving the requisite number for the crop, with a margin for contingencies. Continue disbudding, taking care to leave a growth at the base of each bearing branch, and another at its extremity, or at least level with the fruit. The shoots retained for attracting the sap to and supporting the fruit should be stopped at the third leaf, but the basal shoots must be trained to take the place of those now bearing fruit. The shoots on extensions must be left at 12 to 15 inches distance apart to form the bearing wood of the future and for framing the trees. Crowding the growths is a great mistake, therefore permit only those to remain for which there is room, each having full exposure to light and air, seeking to maintain an equal balance of growth throughout the trees, and effecting its solidification by judicious ventilation. This must be carefully done in severe weather, avoiding currents of cold air, always ventilating early and closing in the afternoon, so as to enclose a moderate amount of sun heat.

Second Early House.—Trees started in January have the flowering somewhat prolonged in consequence of the severe weather, and fertilising may still be practised, brushing the flowers, or distributing the pollen by shaking the trellis. Admit air on favourable occasions, freely when the external air is mild, avoiding cold currents in severe weather, and provide a little ventilation constantly at the top of the house. The night temperature should be maintained at 50°, and 5° less on cold nights, 55° by day artificially, and 60° to 65° from sun heat, not allowing a rise to 65° without a free circulation of air. Syringe the trees when the flowers fade, but only moderately, as excessive moisture facilitates wood growth more than the development of the fruit. The moisture will assist the fruit to throw off the remains of the flowers. In dull weather a genial condition of the atmosphere may be secured by damping the surfaces rather than the trees in the morning and early afternoon, an occasional syringing early in the day sufficing to keep red spider in check.

Houses Started Early in February.—The trees are now coming into flower. Syringing over the trees must cease; indeed, it should be discontinued when the blossoms show colour. Nevertheless, maintain sufficient moisture by damping the paths and borders two or three times a day as weather may indicate as advisable, avoiding a close stagnant atmosphere. If the flowers are numerous thin them by rubbing the hand downwards on the under side or back of the growths, which will strengthen the remainder. Examine the trees closely, and if there are any aphides fumigate with tobacco or vapourise with nicotine, so as to destroy them before the flowers expand. Continue the temperature at 40° to 45° at night and 50° by day, above which ventilate freely. When the flowers expand raise the temperature to 50° at night, 55° by day artificially, and 60° to 65° from sun heat with free ventilation. On cold nights the temperature may fall to 45° or even to 40°, also 50° by day in dull cold weather, allowing a little ventilation constantly at the top of the house.

Cherry House.—The temperature having been maintained at 40° to 45° at night and about 50° in the daytime regularly, the trees started in December will be going out of flower, and the fruit having set may have the night temperature slightly advanced; while trees started early in the year and forced for the first time will be rapidly unfolding their buds. Before the flowers expand the house should be fumigated, as aphides are almost certain to be present, but the fumigations must be done carefully or the blossoms will be more or less injured. An application of rather strong quassia water (4 ozs. chips to a gallon of water boiled for a quarter of an hour) will answer the same purpose, repeating it at intervals of a day or two. The temperatures named above must not be exceeded, ventilation commencing at 50°, more freely at 55°, and an advance above 60° to 65° not allowed without the fullest amount of air. Keep water from the blossoms, but secure a genial atmosphere by damping the paths and borders occasionally. Maintain the soil in a thoroughly moist, but not sodden condition, and supply water to trees in pots as required.

Cucumbers.—Plants in bearing require looking over about twice a week, removing bad leaves, cutting out exhausted growths, thinning the shoots, stopping these one or two joints beyond the fruit, or leaving more growth where there is space, and removing old and deformed fruits. By thinning the old growths room will be provided for young successional bearing shoots, and keeping the growing parts fairly thin the plants will fruit better and be of much better quality. In securing the young shoots to the trellis do not tie them too tightly, but allow room for development. Plants that have been in bearing some time should have the surface soil removed, and previously warmed fresh soil added. Turfy loam, with a fourth of well-decayed manure and a little quicklime and soot mixed through the compost, is suitable. This will encourage abundance of surface roots, and then the plants can be fed to any extent by liquid applications, or preferably chemical manures washed in. The bottom heat should not be allowed to fall below 75°, nor exceed 90°; top heat 65° to 70° at night, 5° less in severe weather, 70° to 75° by day artificially, rising to 85° or 90° with sun, closing soon after midday, so as to secure and maintain for some time a temperature of 90° to 95°, or even 100°. Damp the pathways and walls in the morning, at closing time, or early in the afternoon, and again later. An occasional light syringing may be indulged in on bright mornings or at closing time. Keep the evaporation troughs filled with liquid manure, or damp the pathway with it at the time of closing the house, but take care to use it weak, or the ammonia evolved may do irreparable injury to the foliage.

Melons.—The young plants have made sturdy but not very free growth, being retarded by the severe weather. If not planted out this should be done before they become root-bound, forming a ridge the whole length of the bed and about 2 feet wide at the base, with the top flattened so as to give a depth of 10 to 12 inches. Hillocks may be formed with a similar base and depth at about 2½ to 3 feet apart from centre to centre, the soil being made firm, and when warmed through the plants may be turned out, pressing the compost well about the balls and raising it to within an inch of the seed leaves. The plants may be placed 2½ or 3 feet apart, the leading or primary shoots being taken up without stopping until fully two-thirds up the trellis, then pinch off the point of each. Remove the laterals when discernible up to the trellis, and rub off every alternate one on opposite sides of the stem, and when the laterals have made three or four leaves pinch off the points. Some varieties show fruit on the first laterals, and as early fruit is a consideration let them remain, fertilising the blossom and taking off the point of the shoot one joint beyond. After stopping the first laterals fruit will show freely on the second at the second or third joint, the growths being trained evenly and thinly so that every part of the trellis is covered with foliage and fruit. The plants require watering moderately in the early stages of growth, little being required as yet, nevertheless maintain the soil in a moist state. Sprinkle the pathways and walls on bright days, and again at closing time or early in the afternoon. Ventilate carefully, avoiding cold currents of air, and when the external air is cold place some hexagon netting over the openings, so as to break the force of the cutting winds. Maintain a night temperature of 65° to 70°, falling to 65° or 60° in the morning, 70° to 75° by day, rising to 80° or 90° from sun heat, closing early so as to secure and retain 90° to 100° of the solar warmth; bottom heat 80° to 85°.

Melons in Pits and Frames.—Where Melon plants from early sowings are planted in these structures, and trained over the surface of the beds, the plants should be stopped at the second leaf, which will give two or more shoots; but two are ample, rubbing off the others. These

shoots stopped at the second or third leaf will furnish two or more each, but four are ample for ordinary sized lights, and a plant in the centre of each. Take two to the front and the same to the back of the framed pit, and rub off any shoots that proceed from nearer the stem, it being important that no lateral be formed nearer to it than 6 inches. Stop the principal shoots when within 15 inches of the sides of the pit or frame; this will concentrate the vigour on the laterals, which will show fruit at the second or third joint, which should be fertilised and the shoots stopped one joint beyond. Cover the lights with double mats at night, and see that the linings are regularly attended to, renewing the old ones as required. Prepare material for making fresh beds. About a fortnight before it is desired to do so the manure and leaves should be thoroughly incorporated, using about two-thirds leaves to one of stable litter. In a few days the heap, if properly moistened and mixed, will become warm; if not turn the whole, sprinkling with water or liquid manure so as to moisten it, and when in good heat turn again, outside to inside, two or three such turnings at intervals of about four days being necessary, when it will have parted with rank steam and be fit for making up the beds.

Strawberries in Pots.—The earliest-forced plants will need the fruit supporting by forked twigs of Birch thrust into the soil, the stem of the truss being placed in the fork so that the fruit hangs clear of the pot or soil. It will thus acquire better colour and quality, and be in less danger of damping. Later succeeding batch of plants having the fruit fairly set will need attention in removing all deformed fruits, leaving the most promising and in number proportionate to the vigour of the plant and variety is calculated to attain first-class size and perfection. The swelling should be aided by copious supplies of liquid manure. The temperature should be 60° to 65° at night, 70° to 75° by day, with gleams of sun and moderate ventilation, advancing 5° to 10° on bright days. Avoid drying currents of air, as they injuriously affect the swelling of the fruit. Examine the plants twice a day for water, giving it only to those in need of a supply, and always so as to moisten the soil through to the drainage. Keep successional plants free from aphides, taking care to have them quite clean by the time the flowers open. British Queen and other late forcing varieties may now be introduced, at the same time starting proportionate quantities of the midseason or second early varieties, such as Sir Joseph Paxton, to maintain the succession of fruit unbroken.

PLANT HOUSES.

Eulalias.—Plants that have enjoyed a good rest may have the old soil shaken from their roots and be repotted. If increased stock is needed the roots may be divided and potted in any size most suitable for furnishing purposes. These plants do well in good loam, one-seventh of manure, and sand. After potting place them in a warm moist house, and they will quickly start into growth. Those required for autumn decoration should be retarded by keeping them in a position where they will not grow, and on the dry side at their roots.

Fuchsias.—Young plants that have been wintered in a temperature of 45° to 55° may now be pushed forward, and be placed into 5-inch pots. In a temperature 10° higher they will soon make a start, and will be useful early in the season. Plants that have commenced to grow in early vineries or Peach houses may be repotted, the old soil being shaken from the roots, and the plants placed in slightly smaller pots than those they are intended to flower in. These plants do well in a compost of good loam three parts to one of leaf mould, one-seventh of old Mushroom bed refuse may be added, and a liberal quantity of coarse sand, the whole being warmed before use.

Araucaria excelsa.—This plant will grow rapidly if given an intermediate temperature, though it does very well in a cool house. If kept too close the plants become tall and weak at the base. This plant needs a fair amount of root room in its early stages, and succeeds well in good loam, one-third leaf mould, one-seventh of manure and coarse sand. Syringe the plants freely, as thrips often appear if kept in a dry place.

Aralia Sieboldi.—For cold, draughty places where many plants would not do this will stand, and if cared for will make a very handsome specimen. If possible, a well-furnished plant should be started with; even seedlings make splendid plants, because when their lower leaves fall the stem is practically hid by the drooping nature of the leaves. During the winter when used in rooms, halls, or similar positions, the plant should be kept on the dry side at its roots.

Bouvardias.—Plants that were placed in pits may be lifted, cut over, and packed closely together in boxes amongst leaf mould and sand. These, if stood on the pipes in a warm house and kept fairly moist, will soon start into growth. Where an increased stock is needed take off some of the strongest roots, cut them into lengths, and insert two or three pieces in a thumb pot. A capital plan is to raise a few plants from roots annually. When this plan is followed the stock planted out or even grown in pots can, after they have done flowering, be thrown away. The young plants in boxes would then be cut over at this season of the year, and started again in growth, the same as advised for plants lifted from pits.

Prunus sinensis.—As plants go out of flower they should be pruned close back, and placed in a Peach house at work to start into growth. If the pots are full of roots, and when the plants have commenced growth, the old balls may be slightly reduced and the plants repotted in the same size pots. Good loam and one-seventh of manure will suit these plants well. If the plants are not repotted two or three applications of chemical manure may be given during the season of growth.

THE BEE-KEEPER.

APIARIAN NOTES.

THE first mild day after the bees have had a flight I shall feed a little from beneath, as it is not advisable to cool the hive by uncovering the top. For many years I have abandoned top feeding, and do not regret it, though exceptions are made with certain weak stocks and nuclei in the summer.

It sometimes happens during cold weather where there is a scarcity of honey in the hive bees may appear dead; but I have resuscitated many by taking the hive into a warm room, then when they began to move sprinkled them slightly with a little thin syrup. In such cases bee-keepers may be able to save stocks still living by acting in this simple and easy manner.

No time should be lost in getting everything in order for the coming season, nor should any defects that have been observed be overlooked. It frequently happens with those who move their bees to the Heather to find themselves short of light packing material for supers. A good and cleanly material for the purpose is paper or light cardboard cut and bent to lie closely round the supers, a piece of gummed paper being employed to fix the ends. There is nothing better than paper for keeping out draughts and preserving an uniform temperature in supers during the autumn. I have taken bees to and from the Heather for nearly half a century, and have long since proved that hives suitable for moving about have also been the best in the home apiary.

To those beginning bee-keeping I would say, Think well over these things, and do not incur heavy expenses on hives which may not meet all the requirements in the different phases of bee-keeping.

Those who still use solid floors should provide themselves with a few extra, and when a thaw comes have them warm and dry to exchange with those dripping with moisture from the perspiration of bees, rain, and snowdrift, as damp boards are fatal to bee life. Tin scoops, having thin laths fitted to allow the bees to walk on, and sip the food from between the laths, are the safest and best feeders to use, especially after so severe a winter.—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES—THE SEVERE WEATHER.

A FEW notes on the present extreme spell of cold weather, and its probable effect on bees, may be of interest to bee-keepers. Having been a close observer of the weather for many years I can say that the past ten days has been the most severe in my experience. The frost commenced on the last day of the old year, and with only two exceptions there has been frost every night since. This occurred on the 16th and 17th of January, the lowest reading of the thermometer on those dates being 33° and 35° respectively.

The observations are taken from a tested instrument, placed on a stand at an elevation of 4 feet. The lowest readings were February 6th, 2°; 7th, 3°; 8th, 3°; 9th, 4°; 10th, 3°; 11th, 9°. In the present instance, although we were favoured with bright sunny days, there were several degrees of frost the whole of the time. At 5 P.M. on the 7th inst. the thermometer registered 27° of frost.

One remarkable thing about the present severe frost in the Midland counties is the amount of bright sunshine there has been every day, which has tempted a few stray bees to leave those hives that were not shaded, being attracted by the bright sun and the glare from the snow. These soon became numbed, and would prove a tender morsel to the numerous tits that abound in the neighbourhood of my hives. I never saw them so intent on destroying bees as during the present storm, darting after them whilst on the wing, and alighting on the nearest bush to dissect them. I lately saw a single tit catch and devour three bees in less than a minute. It shows the amount of damage a few of these birds will do in an apiary. During the past three weeks I have destroyed over fifty, and still they come.

It will be interesting to note the difference in the various hives for wintering purposes. No doubt there will be some losses, particularly from stocks that have run short of stores and others that are not protected from the weather. I am not a believer in covering up the outsides of frame hives as a protection against the weather, and never practise it. My hives all stand singly out in the open exposed to all weathers, and they invariably winter well. If the bees are kept dry and are well protected with several thicknesses of disused carpet, or any warm material, they will come to no harm. Cushions of cork dust or chaff make capital warm coverings. Bees will stand more cold than many people give them credit for.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

W. Atlee, Burpee & Co., Philadelphia.—*Farm Annual*.
William Clibran & Son, Altrincham.—*Agricultural Seeds*.
R. Dean, Ranelagh Road, Ealing.—*List of Hardy Plants and Seeds*.
Dicksons, Ltd., Chester.—*Farm Seeds*.
T. W. Edmunds, Westerham, Kent.—*General Seed List*.
H. J. Jones, Ryecroft Nursery, Hither Green, Lewisham.—*New and Choice Plants*.
A. Morris & Co., Tullow Street, Carlow.—*Seed and Plant List*.
J. R. Pearson & Sons, Chilwell Nurseries, Beeston, Notts.—*Catalogue of Zonal Pelargoniums*.
Sutton & Sons, Reading.—*Farmers' Year Book and Graziers' Manual*.

TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Pruning Fruit Trees (A. H. E.).—We advise you to wait till the frost departs, and sincerely hope you will not have to wait very long.

Dressing Peach Trees (C. R.).—The answer on page 153, last week, under the heading of "A Good Dressing for Fruit Trees," exactly meets your case; but instead of "one part" read 1 pint of gas tar for mixing with the other ingredients.

Roman Hyacinths Unsatisfactory (D. A.).—There is no disease in the bulbs. They do not appear to have made any roots worth mentioning, and that would account for the pooriness of the growth and the extreme meagreness of the spikes, but as these are what they have been formed in embryo in the preceding year to their development, the growth of the plants must have been arrested whilst forming such embryo, hence the indifferent growth and flower spikes. The roots also are formed in embryo—that is, the cells from which they proceed are specialised, and these also have disappeared. Whether from disease or other cause these embryonic cells have collapsed we are unable to say, but it manifestly had occurred before the bulbs were potted, as there is only the smallest evidence of roots having been emitted.

Caustic Soda and Potash Wash for Peach Trees (Constant Reader).—Now that the trees are more or less moving, and the wood certainly not overripe in cold houses after last year's dullness, the caustic soda and potash wash should not be used at all on Peach trees for the destruction of scale. It is a somewhat dangerous wash to use in this country, as the wood of Peach, Nectarine, also Apricot trees, is never so hard as that of the Californian orchards; yet these imported prescriptions are advised as if they were of English origin, and had been extensively used. On trees quite dormant, and with the wood thoroughly ripened, the wash does no harm to the hardier fruits, but on the tender bark it requires to be used with great care. If you like to risk the wash you may use half pound caustic soda and half pound pearlash to 12 gallons of water, using the solution in the form of a spray, yet wetting every part. The caustic soda should have a strength of 98 per cent., and the pearlash be of the first quality. We do not, however, advise its use, for the reasons given, at this time of year. It would be better to employ a petroleum emulsion (see below) than the alkali wash.

Gooseberry Red Spider (Constant Reader).—Lime water made by slaking a peck of quicklime in a tub and pouring on it 30 gallons of water, stirring well, and letting stand four days or a week, when the bushes infested may be syringed with the clear lime water. Soot water prepared in a similar way, but doubling the quantity of water, is also efficacious, and both being quite clear no deposit is left upon the berries. Or you may use the following:—1 lb. softsoap, dissolved by boiling in a gallon of water; remove from the fire, and add half a gill (about an ordinary wineglassful) of petroleum, and stir briskly with a birch switch so as to secure the thorough amalgamation of the oil, then dilute to 8 gallons for use, applying with a fine-rose syringe, or better by a spraying apparatus. This is quite strong enough to use when the foliage is first pushing and the crop just appearing. When the first leaves are full-sized you may use double the quantity of petroleum to the same amount of softsoap and water, which is the strength desirable for the destruction of scale.

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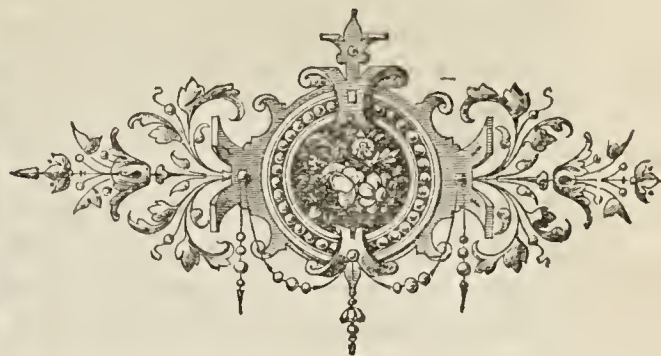
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Journal of Horticulture.

THURSDAY, FEBRUARY 18, 1895.

CONGESTED HOUSES.

CONGESTION in glass structures is of annual occurrence during the winter season. When the first touch of the icy hand is felt the question arises how to house and stow away the innumerable plants to be held over until relief comes, by turning out the usurpers in the spring. To many the question is one of some difficulty, of late years augmented by the large share of space claimed by the Chrysanthemums. This we do not grudge them; but they are the cause at least of some anxiety both on their own account and their competitors for space. Nor is the matter confined to gardens limited in area or glass. As a rule the glass is in proportion to the garden, and requirements are in like ratio; hence, from the villa garden with its greenhouse to the palatial establishment and its extensive range, the same difficulties have to be met, and the trouble is but one of degree.

Having diagnosed a disease, the primary cause is sought for with the object of removing it; failing that, to adopt such palliative measures as may be expedient. The latter is, however, but cold comfort to the long-suffering ones, who reluctantly admit that "What can't be cured must be endured;" but there are some hopes of a good time coming, and such hopes are yearly increasing. Many a gardener who but a few short years ago would have thought it one of his wildest dreams that the bedding craze could subside, has now more than a faint hope of those dreams being realised; and though directly the retention of so laborious a fashion is practically out of his hands, he can possibly find the means, by giving it a surreptitious push, to hasten the end. The increasing taste for hardy plants is to some considerable extent paving the way, and though the time may be remote when some tender exotics will not be employed for bedding, considerable ease to this congestion may be found by employing those plants—tuberous rooted—requiring but the protection afforded by a store room or frost-proof shed.

Few could foresee the perfection to which the worthily popular Tuberous Begonia has been brought, and it is not easy to predict what may yet be done to yield a variety of effect by utilising

plants of a similar nature. In the near future the merits of hybrid Cannas will not be overlooked, for those merits are of a high order from two points of view—viz., summer adornment and winter ease. The blessing is to some extent qualified by the glass room required for starting them in the spring, the season when congestion reaches an acute stage. With some things this cannot be avoided, with others it may be lessened by kindling the dormant spark with the least possible amount of fire heat; so will they better withstand after unkind snaps, whilst the hardening process, always a troublesome one, will be rendered easier.

Whilst giving the Zonal Pelargonium its due, it has, as a bedding plant, been glorified beyond its merits. For some eight months out of the twelve it requires glass protection, and its effective period of display in the beds has again to be discounted. It has undoubtedly had its day, and a long day, too. True, few of our tender bedders can boast of a longer duration of outdoor life, but some of them can now be raised annually from spring-sown seeds, and may be relied upon to retain the parental character with some increase of vigour. We have to thank our seedsmen for the pure strains of various plants making this possible, and though these seedlings, such as Lobelias, by their vigour do not conform to those prim habits we look for in carpet bedding, this fault is rather a merit when they are otherwise employed.

These are but palliatives. The cure must be looked for amongst hardy plants, and though at present but dimly revealed, the wide range here presented cannot but contain some kinds which if taken in hand by the hybridist or improved by selection, should meet the demands of formal bedding. Recent history demonstrates how obscure types have been raised to the ideal by the horticulturist, and noting what has, and is being done, there is not any reason for supposing that purely hardy plants cannot be raised to the level of beauty, form, habit, or colour adapted for the purpose. Demand creates supply, but I venture to think that if this order is reversed, and that if such plants are forthcoming, the supply will create demand, for their merits cannot be ignored.

Too long have the inmates proper of our houses been jostled and crowded through the dark days of winter; too heavy has been the strain on all concerned; yet out of evil has come good, for owners of the structures can now see the incubus borne on the back of the gardener. The doom of the fashion is sealed, yet it dies slowly. Sudden death would create a void. Hardy plants as substitutes must in addition to the merit of hardiness contain all the points which are looked for in the tender kinds, and though having all these, may still have to overcome some prejudice, dispel some glamour yet lingering over their more delicate cousins. Yes, all nowadays are apt to count the cost, whether it be expense literal or expense of force, and the time is at hand when common sense will not despise common things whose lineaments are endowed with lines of beauty and utility.

Such changes obtain only by degrees. The present is our immediate concern, and we know how at the present, and at the present season, the man who is troubled to raise, protect, and propagate the thousands of tender plants for an after brief display, has his trouble doubled by the hundred things strictly utilitarian he may not neglect. Vegetables have to be forwarded to circumvent a long winter and an all too short summer. Fruits in season or out of season are looked for, nor must they be found wanting; and in how few gardens is not this felt to that degree, in which a gardener grudges the very space taken up by the walks in the houses.

In private gardens these walks in the houses often tempt the covetous eye by the large amount of space they absorb. To meet the pinch some at least of this space may be utilised by temporary shelves erected overhead. Shelves are not, it must be admitted, things of beauty, but that consideration may and must to some extent be shelved at the winter season. This phase has nought to do with the shelves proper, which presumably are fixtures.

Brackets or pendants for carrying suspended shelves, can be devised and adapted to the roof. These, if permanently fixed, form no eyesore when the boards are removed, and there are but few of our houses, even of the ornamental type, into which these temporary shelves could not be pressed at the pinch and do good duty. These boards if planed, painted, and numbered when fitted, can be stored when not required.

A well furnished Pine, such as *P. austriaca*, if growing in the vicinity of the garden, with its branches sweeping to the ground, forms an excellent snugger for *Agapanthus*, Lilies, or such things requiring some protection. During a hard spell some litter will ensure safety. Small matters as these are, they are little helps worth having. That congestion which cannot be avoided amongst the rightful occupants of the houses, must be met by scrupulous attention to cleanliness in all details, with the frequent turning and shifting it involves. This attention conduces to the maintenance of health during the time that accommodation has to be found for these temporary visitors, of which we would much prefer their room to their company.—E. K., *Dublin*.

PLANTS FOR THE BACK WALLS OF VINERIES.

A GREAT variety of plants have at various times been recommended for this purpose; some of them which have been much belauded by a few cultivators have proved conspicuous failures in the hands of others. This, I think, occurs through an insufficient explanation as to the real conditions under which they were grown successfully. To illustrate this point let me take the case of Figs, which a few years ago were in many gardens planted against vinery walls with the firm conviction they would prove satisfactory, but unfortunately far more failures than successes resulted from the practice. The explanation of this is, I opine, simple enough; for by the time the principal crop of Figs should commence ripening the foliage of the Vines overhead affords too dense a shade for Figs to ripen properly, and for the same reason only unripened wood is available for the next season's crop. Notwithstanding these well-known facts some cultivators have succeeded in producing good crops in positions above described, but I think the key to the whole matter will generally be found in the fact that the Vines have not been allowed to extend the whole length of the rafter, or that the vineries have been hip-roofed, with the back part entirely free from Vine foliage. Such conditions as these of course entirely alter the whole matter. It is simply "robbing Peter to pay Paul."

The plants which I intend to recommend for that purpose are those which will thrive well in houses where Vines are trained over the whole surface of the roof. Those two fine introductions of recent years—*Asparagus plumosus* and *A. tenuissimus*—are sterling plants for covering walls in the positions above indicated. The extra heat given to the Vines during the growing period is productive of free growth in the Asparaguses, and the conditions under which Vines succeed while finishing their crops, and during the season of rest, insure properly hardened Asparagus sprays. No difficulty ought to be experienced in securing good growths annually if strong plants are secured to start with, and liberal treatment given when they are well established. They will then revel in abundant supplies of liquid manure or chemical fertilisers. Frequently these plants are unsatisfactory through being starved. It is desirable to have properly prepared borders, so that the roots may be confined within a given space, and thus be under perfect control.

It is often impossible to allow much width of border, especially in old vineries where the stone slabs forming the pathway are fixed within a short distance of the back wall. Fortunately only a limited amount of space is really necessary; any width ranging from 9 to 15 inches, with a depth of 12 or 18 inches, does very well. If the front of this space is not already confined by a wall or boundary of some kind a rough brick wall should be built. Six inches of broken clinkers, corks, bricks, or similar material ought to be employed for drainage, and be covered with moss, rough peat, or loam fibre. Two parts loam, one part leaf soil and one of horse droppings (prepared as for a Mushroom bed), with a little sand and lime rubble, when mixed together form a capital compost in which to set the plants. A good time for planting is when the houses are closed for starting the Vines.

Two other excellent plants for the same purpose are *Smilax* and *Lygodium scandens*. The first named requires but little root room, and for the first year or two will succeed admirably if kept

in 6 or 7-inch pots, the pots being plunged in the soil, but they should rest upon bricks, so that a proper outlet is provided for superfluous water. *Lygodium scandens* requires a more extended root run, and should therefore be planted in those positions where it can be provided. A good proportion of peat may with advantage be mixed with the compost.

I am well aware that there are many other plants which thrive fairly well on vinery walls, but many of them are of little use when they have grown, and I maintain that it is necessary in these economic days to grow such things as are of the greatest service. Few gardens can boast of an adequate supply of the plants above enumerated, and many gardeners would find it advantageous to root out comparatively worthless plants and clothe their vinery walls entirely with those plants above enumerated.

If a greater variety is essential, *Camellias* succeed fairly well in midseason and late houses; so do *Abutilons* of various types, and *Ficus repens* thrives admirably in early or late houses.—W. C.



PHALÆNOPSIS INTERMEDIA PORTEL.

When staged by Mr. E. Hill, gardener to Lord Rothschild, at the last meeting of the Royal Horticultural Society, this charming *Phalænopsis* was given a first-class certificate. It is described in Williams' "Orchid Album" as follows:—"This beautiful plant, which is very rare, is not unlikely to be a natural hybrid, and if so we should suppose it to be a cross between *P. rosea* and *P. amabilis*; let it, however, be hybrid or species, it ranks among the very handsomest of its class. In general habit it resembles *P. grandiflora*, the leaves being broad oblong acute, about 1 foot in length, the upper side dark green, the under side dark purplish, more in the way of *P. amabilis*. The spikes are arched and branched, supporting the numerous large flowers. In one form the oblong sepals and rhomboid petals are white, suffused with light rose at the base, the lip rich dark purplish rose, with the lateral lobes bluntly wedge-shaped, rosy, the base of the front lobe tinted with orange-yellow, and the disc and callus yellow, the latter marked with deep purple spots. The flowers are of good substance, and remain in perfection a very long time."

The woodcut (fig. 34) admirably depicts the characters of the flowers.

CULTURAL NOTES ON ODONTOGLOSSUMS.

How firmly rooted has become the notion that these plants cannot well be overwatered. If cultivators would only try to impress on their minds the fact that they are not bog plants, and for the most part grow on the branches and stems of trees, they would the more readily grasp the method of watering these plants require. That the plants grow naturally under shady, moist conditions cannot well be questioned, but these can be obtained without overwatering them.

What is really needed in the watering of these plants is care and judgment, so that more copious supplies are given during the period of active growth, when evaporation is greatest both from the material about the roots and from the plants. During the winter or resting period evaporation is not great, and the plants do not require such liberal supplies. The soil is rendered wet and sour, and the roots, instead of remaining perfectly healthy, are often dead when examined during the early spring months. Once plants are reduced to this deplorable state they are a long time, even under good treatment, before they start again vigorously into growth. If the hot-water pipes are so arranged that they do not unduly dry the plants there is no difficulty in keeping them and the atmosphere moist enough by damping and syringing amongst the pots. Directly the plants display signs of dryness a good soaking should be given, and the plants then left until they require further supplies. A little too much water during the summer and growing season can soon be corrected, but it cannot be done so easily during the winter.

When the plants are showing signs of root activity the supply of water to their roots may be slightly increased and the atmosphere kept a trifle moister. This encourages the formation of growth and roots. The starting should be gradual, similar to the practice that should be followed with imported pseudo-bulbs. When poor peat is used and the plants overwatered the evil is intensified. Good fibrous peat will last a fair length of time in a sweet open condition. Failure often results with these plants through allowing

decomposed material to occupy the pots in which they are grown. Abundance of drainage, fibrous peat, and a little living sphagnum moss only on the surface will grow these plants well.

It is also a mistake to have the plants in too large pots. Very frequently imported pieces are started in 2-inch pots nearly full of drainage, with just a little peat to secure them in position. They will in these small pots make good growth, but not many roots. *Odontoglossums* are not large rooting plants, and the mistake is often made at the first potting after they are established. Three-inch pots are large enough for the second potting, and it is wise to fill them within 1 inch of the top with drainage. In this size the plants are not so easily overwatered, and should with good treatment make stout pseudo-bulbs.

The secrets of successful culture are a winter temperature of



FIG. 34.—PHALÆNOPSIS INTERMEDIA PORTEL.

about 50°, shade from bright sunshine, a moist genial atmosphere, with air admitted daily whenever the weather is favourable, small pots, ample drainage, a sweet open rooting medium, careful watering and dewing during the period of growth.—WM. BARDNEY.

BRASSAVOLAS.

THESE very interesting Orchids are worthy of a place in all collections, and it would be difficult to say why they are not more grown. The majority are not very showy it is true, but they are easily cultivated, free flowering, and mostly produce their blossoms during the duldest months of the year, when flowers of all kinds are very acceptable. None of the species like much material about the roots, and that used must be of the best description. They will thrive in baskets suspended from the roof, on blocks dressed with sphagnum, or in pots in the usual peat and moss mixture, and if strongly grown will not fail to give a good account of themselves at flowering time. A full *Cattleya* temperature suits most of them, and while growing they must be well

supplied with moisture at the roots. When at rest less will be required, but always give sufficient to keep the foliage and stems in good order.

The genus is not a well marked or characteristic one, the plants varying a good deal in habit and inflorescence. The late Professor Reichenbach referred this genus to *Bletia*, but they are usually known by the older name. *B. acaulis* grows in tufts of their rush-like leaves without stems or pseudo-bulbs. The flowers last a long time in good condition, are whitish, sometimes very pale green; the sepals and petals narrow, the latter drooping; the lip large, broad at the base, pointed, with an irregular, toothed edge. This flowers in October and November, and is a native of Central America.

B. Digbyana grows about 6 inches high, and has compressed pseudo-bulbs and oval glaucous foliage. The flowers are large, principally of a cloudy, greenish white, similar in shape to the *Lælia*, to which genus it is ascribed by Bentham. The lip is large and broadly heart shaped, with a deep fringe, which is one of its chief attractions. This comes from Honduras, and first flowered in this country at Minterne House, Dorsetshire, in 1846. *B. Gibbsianum* has somewhat cylindrical foliage, and flowers of a creamy white. It is a free flowering and very desirable species. *B. glauca* is a small-growing species of the pseudo-bulbous section. The blooms are produced singly from a sheath at the apex of the pseudo-bulbs, after the manner of a *Cattleya*. The petals are greenish white, the lip pure white, spreading, with a wavy margin. It flowers in winter and early spring, and is a native of South America.

B. lineata, *B. Martiana*, and *B. venosa* are all free flowering and useful Orchids. They have cylindrical leaves, and flower in racemes from the base of these. They are best grown on blocks suspended from the roof in the warm end of the *Cattleya* house. —H. R. R.

CALANTHES AND THEIR CULTURE.

CALANTHES, being natives of Burmah, should be rested as soon as the flowering is over, the growth buds for the following year at once commence swelling, and if the pseudo-bulbs are in a temperature high enough to assist them in doing so there is no better way than to rest them in warm quarters.

To be successful in *Calanthe* culture the plants should be grown as near the glass as possible. I prefer turning them out previous to potting and placing the pseudo-bulbs upright in boxes, with a little moss at the bottom, until the young rootlets are visible, when they are ready for potting. Great care must be taken not to damage these young rootlets, and watering should be exercised with caution directly after potting. When the plants are rooted they will require abundance of water until the growth is complete, after which the supply should be reduced, or the roots will decay before their proper time.

In order to obtain a large amount of flowers the pseudo-bulbs should not be parted at the time of shaking out (excepting the very small ones), but be allowed to remain attached to the old bulbs which have produced them, thus giving more strength to the new growths, which have to maintain the following year's spikes. If kept warm as recommended, the bulbs of the preceding season will, in the course of a month after the flowering is over, push two or three buds from the base; these should be removed as soon as discernible, with the exception of the strongest at the bottom. Each piece, now consisting of two or three bulbs each, should be placed in 7 to 9-inch pots, according to size. In potting keep the old bulbs well against the side of the pot, so that the young ones will have room to swell, taking care to have them well elevated above the rim of the pot. Smaller plants may be well grown by removing the old bulbs and potting the young ones in smaller pots.

The compost I have found most suitable for *Calanthes* consists of three parts good turfy loam, one part fibrous peat, quarter part dry cow or sheep manure, quarter part charcoal, adding a little soot and sand. They should be potted moderately firm, and, of course, in clean and well-drained pots.—S. K., *Lymington*.

ANNUALS FOR SUMMER BEDDING.

ANNUALS have long played a conspicuous part in the adornment of our gardens. At one time they were but little used in the flower garden, and few species or varieties were then really adapted for the purpose. During the last twenty years, however, much attention has been paid to the work of raising various types of annuals possessing a compact habit of growth, combined with great floriferousness and distinctness of colour. How well our patient and systematic hybridists have succeeded in their task may each year be noted in innumerable gardens, when these beautiful, gay, and accommodating flowers blossom in all their glory! Hosts of annuals produce showy and brilliant flowers, but are too tall

for bedding. These I must pass over for the present, treating only of those thoroughly adapted for filling large or small beds.

It is quite possible that these may be in greater demand than usual this season, for when the battle between frost and heat has been waged under the great disadvantage of insufficient boiler power, *Pelargoniums* and other tender bedding plants will be none too numerous. Bearing these things in mind, it is well for us all to take time by the forelock, and sow annuals in sufficient quantities to secure the requisite number of plants, so that when the time for bedding arrives we shall not be troubled with a scarcity of materials. Some of the plants which I shall recommend are not annuals in the true sense of the word, but for our immediate purpose may be treated as such.

Taking them alphabetically, the *Asters* appeal first to our notice. Every reliable firm of seedsmen offer seeds of dwarf types thoroughly adapted for bedding. All are so good that it is unnecessary to particularise the products of any particular firm. From the end of March to the beginning of May is quite soon enough to sow the seeds, the earlier sowings being made in a frame, and the later in the open air. I strongly advocate sowing thinly, so as to secure sturdy plants from the start. It is also a good plan to prick out a number of reserve plants 6 inches apart. These will prove extremely useful for filling beds in which spring-flowering plants were somewhat late in displaying their beauty, or for planting between *Violas*, so as to give a good autumn display.

It is not often that *Antirrhinums* are employed for bedding, but they are thoroughly effective and reliable when used for that purpose. The *Tom Thumb* varieties do not exceed 1 foot in height; these may be obtained in distinct colours, crimson, white, and yellow are the most effective. Seed of a dwarf scarlet may be obtained, but plants of this variety usually attain a height of 18 inches, and are well adapted for using as "dot" plants, having a groundwork of *Viola Countess of Hopetoun* (white). The seeds should be sown in gentle heat early in March. *Clarkias* possess the great merit of being extremely easy to grow, while at the same time they compare favourably for profusion and brilliancy of blossom with any known bedding plant. *Tom Thumb* and *Double Dwarf White*, each grow 1 foot in height. The flowers of the first named are bright rose in colour. Sow in April in the open air.

Both the single and double forms of *Dianthus Heddewigi* rank among the most beautiful of summer bedding plants. The combination of colours to be obtained from plants grown from a mixed packet of seeds is marvellous. The plants continue to flower throughout the entire summer. The lacinated forms are also a distinct feature. Crimson, rose, salmon and white colours may be obtained in separate packets. Seeds should be sown at once in a gentle heat. I invariably sow in shallow boxes, and when the plants are large enough prick out 4 inches apart in soil placed on a hotbed. During the early stages of growth the protection of a frame is of course given, but if this should be required for other purposes it may be safely removed by the middle of April, but the protection of mats will be required on frosty nights. Treated in this way fine sturdy plants are obtained ready for lifting with good balls of earth by the end of May. *Sutton's dark blue* and pure white *Lobelias* come so true in colour and compact in form from seed, that it seems to me to be quite unnecessary for those with but little glass at command to winter old plants and strike cuttings in the time-honoured way. To obtain strong plants by the middle of May seeds should be sown in a brisk heat during February or early in March.

Double French Marigolds are well known as showy bedders. They are seen at their best during hot summers; this was fully demonstrated throughout the tropical season of 1893, when they were unsurpassed for the profusion and rich colouring of their flowers. The miniature varieties only are suitable for bedding, except in the case of very large beds, which require something bold. *Legion of Honour*, a single dwarf variety, seems to be spoken highly of in some quarters, and I intend to try it this season. I like to sow the seeds in frames in April, and prick out the seedlings in sheltered positions, where they can remain till the time arrives for planting them in their permanent quarters. *Nemesia strumosa Suttoni*.—This showy and recent introduction, having flowers of peculiar and beautiful shades of colour, ought to be grown in every garden. True, in many instances great difficulty has been experienced in getting it to grow in a satisfactory way, but this I think has been caused through coddling the young seedlings in too much heat, and then planting in soil which has not been well worked. I find it thrives in a rich light soil manured with material from an old hotbed in the autumn. This soil should be forked over, and thoroughly divided a couple of times within a week or ten days of the time when the young plants are set out. The seeds should be sown on a slight hotbed some time during April, and when large enough the young seedlings ought to be pricked out, taking care to press the soil firmly around them.

Petunias, favourite flowers of many an old time gardener, are still exceedingly popular. The single varieties are particularly suitable for summer bedding, for they are as easy to grow as effective when grown. If sown in heat early in March, the plants being subsequently pricked out in a frame, or potted singly into 3-inch pots, good plants are obtained by the middle of May. Abundance of good leaf soil should be mixed with the compost prepared for them in the early stages of growth.

The older forms of Phlox Drummondii are well known to be good and showy bedding plants of extremely easy culture. The dwarf, compact kinds, which attain a height of only 6 inches, are not so well known, yet they are the most valuable class of annual Phloxes in commerce. The seeds ought to be sown in a frame early in April to ensure the production of good plants by bedding out time. Some I know advocate sowing much later, but when this is done the plants do not commence flowering till after the usual occupants of the flower garden are in full beauty, and let them be sown ever so early they invariably continue to flower till the frosts come. A sharp look out should be kept for slugs and other depredators when the seeds show signs of germination, as much damage is frequently done at this stage, which is not apparent unless close attention is given. The seeds are consequently set down as bad, when the real fault lies with the cultivator.

Before concluding this somewhat lengthy list I must call especial attention to a capital substitute for yellow bedding Calceolarias. I do not mean one that should replace Calceolarias where they succeed, but I know in some places, no matter what pains are taken in their culture, the mysterious practice of "going off" plays sad havoc among the plants, and leaves the beds disfigured for the season. Where this is so I advise giving Zinnia Haageana fl.-pl. a trial. I was induced to do so last year, on account of having used up my stock of Calceolarias and still having one unplanted bed, which it was desirable to fill with some orange or yellow flowering plant. This was planted with the Zinnia indicated, which proved thoroughly satisfactory, commencing flowering as soon as anything in the flower garden, and continuing in beauty long after many plants had succumbed to frost. The seeds should be sown in a frame at the end of March, and in other respects treated as Zinnias of the ordinary type.

No matter what the present outlook may be, all who can fortify themselves with a good supply of seeds of the sterling annuals I have enumerated, may look forward to the summer of 1895 with the assurance that their flower beds need not lack one jot of their usual brightness.—H. DUNKIN, *Castle Gardens, Warwick.*

EXHIBITION POTATOES.

THE old notion that certain otherwise useless varieties of Potatoes were specially grown for exhibition and for no other purpose is now happily pretty well exploded. It was very difficult to disabuse some persons' minds of this absurdity, but they are doubtless wiser now. The fact is there never was at any time a specially distinctive exhibition section. I do not think I have ever met with a Potato, unless it was exceptionally ugly, that would not in some soils and under various forms of cultivation produce tubers that were fit for exhibition.

The term "Exhibition Potatoes" in no sense applies to sort. It is applied to specially handsome, clean, even samples of any variety. Persons, however, who failed to produce such handsome, clean, bright samples, met them with the contemptuous remark that they were only show varieties, whereas they were but beautiful samples of ordinary ones in cultivation. There is one direction, perhaps, in which the practice of showing tubers helps to keep certain varieties in commerce, and those are the coloured sorts, and in that respect good is done, because there can be no doubt but that we have in these coloured Potatoes some first-class eating varieties. Take a few coloured rounds, such as Reading Russet and King of the Russets, both red; The Dean and Vicar of Laleham, purple; and Conference and Lord Tennyson, flaked. These are all first-class cropping and cooking varieties, and most valuable to anyone to have in bulk in the winter for consumption, and yet I doubt whether there ever has been or can now be found any six varieties that would give more beautiful samples on the show table than do these coloured sorts I have named. Then take such coloured kidneys as Beauty of Hebron, Prizetaker, Reading Ruby, reds; Blue Beard, Bedford Purple, and Mottled Beauty. These, again, are all of the best quality, and are capital croppers. I do not know whether American Purple is now to be had, but I always found them to be the very best of all the American varieties. Both as a cropper and for cooking quality, Mottled Beauty has all the merit of the Lapstone.

White skin varieties suitable for exhibition are legion. Taking rounds first, Early Regent, Snowball, Sutton's A1 for earliest;

then London Hero, Satisfaction, Supreme, Schoolmaster, Reliance, Windsor Castle, Prime Minister, Snow Queen, Quantity and Quality, Monarch, and Webb's Special; here we have a capital lot from out of which, if all be well grown, it may be very easy to select some eight or nine particularly first-rate.

In all collections, however, white Kidneys always largely predominate, and of these there is a splendid selection of first-class cropping and cooking sorts. It is often found that such as Magnum Bonum, The Bruce, Stourbridge Glory, Chancellor, Reading Giant, Colossal, Maincrop, Future Fame, Remarkable, Wordsley Pride, and similar strong growers give very handsome samples. Then of earlier kinds there are Ringleader, King of the Earlies, Cosmopolitan, The Canon, Puritan, Duke of Albany, Snowdrop, Onward, Marvel, Governor, Congress, and Victory, showing a wide variety, and yet all of the very best table quality. A list such as this, including over fifty varieties, shows that there is no need to grow for exhibition inferior varieties, let them be ever so handsome, as their beauty is quite equalled by that of others far superior in other directions. Could the proposed National Potato Show but have come off, without doubt a material impetus would have been given to the culture of Potatoes in greater variety, and for the purpose of securing specially handsome tubers. It does not do to assume that what is termed ordinary culture suffices to produce these specially handsome samples.

No one who grows for exhibition at good class shows is content with that form of culture. To have the best possible of samples soil and sorts will give, the grower should already be selecting from his seed stocks or getting in from his seedsmen tubers of from 3 to 4 ozs. each, clean and handsome, setting them up on end in shallow boxes and exposing them to the light in an airy place. Later, when the eyes have pushed growth, all but one or two at the most should be cut out with the point of a small knife, and be returned to the boxes. Then planting should be done later, say about the middle of April, or on to the end of the month, as the warmer the soil when planting takes place the quicker is the growth. The soil should be of a well-pulverised nature, and have been deeply trenched, a good dressing of half-decayed stable manure and leaf soil being well buried into it as trenching proceeds.

The planting should be into furrows or trenches from 2½ to 3 feet apart at the least, and even wider for strong growers. The sets in the rows should be from 15 to 18 inches apart. A light dressing of superphosphate, kainit, and nitrate of soda, at the rate of about 4 lbs. to the rod, may be either sown thinly into the furrows with the sets, or be strewn about the plants before the first flat hoeing takes place. Thus a splendid start is made, and if after cultivation be on the same liberal scale there is no reason why abundance of very fine show tubers should not result.—A. D.

MORE ABOUT THE MULBERRY.

HAVING studied the history of this tree, especially in and about London, I would like to supplement Mr. Abbey's very admirable article (page 112, February 7th) by a few notes. First, concerning the antiquity of the Mulberry as a British tree. When we remember the great love that the Romans had for its fruit, it seems likely they planted it in the gardens of some of their English villas, though it may have disappeared from these during the troublous Saxon and Danish times. Some say the black Mulberry was reintroduced by Crusaders, and Forsyth, referring to the Syon House trees, states that he had reason for thinking they were, when he wrote, full 300 years old, which would carry the date to a century earlier than that suggested by Loudon. No doubt the Mulberry will live and thrive for 300 or even 400 years, but I question if there is one left about London that was planted in the Tudor period.

What was reputed at one time the oldest Mulberry tree near the metropolis disappeared about forty years ago. It stood in a garden near Greenwich Park, a remarkable example certainly, for there were ten large branches bending towards the earth, so that it looked like ten trees in proximity, and covered a circumference of 150 feet, growing intermixed with some Elders, being also partly covered with Ivy. It bore fruit regularly, yielding some seasons about 80 quarts in a week. Mulberries flourished at one time in the heart of London, for Fairchild, in the "City Gardener," mentions two old trees he saw in 1722 that were growing behind Sam's Coffeehouse on Ludgate Hill. Of all the suburbs of London, perhaps Chelsea has most memories of the Mulberry, many being planted by the noble residents in the "village of palaces." Queen Elizabeth has been somehow associated with the tree, and there existed several under which she is supposed to have sat to feast upon the fruit. She may have sat under a Mulberry which once grew in the garden of the New Manor House, built by Henry VIII., where she spent part of her girlhood. Though not perhaps of Tudor date, old trees yet survive in Chelsea, two which were formerly in the grounds of Peaufort House, built by Sir Thomas More. Another notable tree, admired by Thomas Carlyle, is in the Rectory garden, but probably the most interesting is one in the garden of Cheyne House, where Mr. Phene has accumulated numerous and curious relics of old Chelsea. Near this old

Mulberry is the stump of a venerable Cedar, also a Catalpa, planted when the tree was very rare, and several Hollies of long standing.

Towards Brompton there yet remains upon the remnant of Elm or Chelsea Park, some of the 2000 trees planted by a joint stock company about 1719 or 1720, the spot having been chosen as suitable for the Mulberry, because the soil was dry and the position elevated. These were to be used for rearing silkworms, in the expectation of making at least £14,000 yearly, but the scheme soon proved a failure. Across the Thames we find Lambeth and its neighbourhood formerly famous for Mulberries; here, in the grounds of Carlisle House, was another Queen Elizabeth's tree, described by Oldys as having "most reverend marks of antiquity, with a large head, and spacious arms, upheld by props like the pages that supported her train." Four or five hundred pottles were gathered from it in 1753 and subsequently. When some old gardens in South Lambeth were being cleared to form Vauxhall Park a few years ago, I noticed a white Mulberry with fruit upon it in spite of the increased London smoke. Buckingham Palace, I may add, stands on the ground occupied by the old Mulberry garden, planted about 1609 at the direction of James I., who spent there nearly £1000 on trees. Afterwards it became a place of popular entertainment.—J. R. S. C.

CLEANING VINES.

I KNOW of no pest so difficult to clear out of a vinery as mealy bug. Especially is this the case where the houses are old and heavily timbered, affording as they do much harbour for this and other insects. Once fairly established in them, it seems almost impossible to eradicate it. Lighter and more modern structures are not so difficult to clean. Of course, if labour and time can be given, all woodwork can be, no matter how heavy, scrubbed, scoured, and painted, and the Vine rods must be similarly dealt with, or all other cleansing operations will be of no avail.

I succeeded to a large legacy of mealy bug when I came here many years ago. I have tried persistently ever since to stamp it out, and although I have not accomplished that entirely, have managed to keep it in check, so that not much damage has been done. I have had to take off all loose bark from the Vines, and where needful much that was not very loose, and although I heartily detest the practice, and would much prefer seeing the men otherwise employed, I know of no other plan. Certainly I would not waste valuable time and try men's patience in denuding Vines of bark if the necessity for the operation did not exist, for, like your able correspondent "E. K." (page 77), "it gives me an uncomfortable feeling," always fearing that some evil may accrue from it, but I can safely say that I have never known any; in fact, the best Grapes I had last year were cut from Vines that have been annually subjected to the stripping process for many years (nearly twenty), and always heavily cropped. In contrast to this, the worst examples I have ever had were from Vines twenty-five years old that have not been peeled for many years. The fault of this lies, where it invariably does, in a defective border, which will be promptly remedied as soon as this great frost has departed.

I have long given up painting Vines with gas tar and other mixtures, preferring washing thoroughly with softsoapy water, to which is added a little petroleum. The canes retaining their natural colour can be looked over for escaped bug much more efficiently than if coated with a pigment of whatever kind. I saw no red spider in our vineries last season, but I fear that destructive pest even more than I do mealy bug, for Vines will finish Grapes well if not too seriously infested with bug, but if red spider gets a footing all chances of a perfect finish to the crop are at an end.

I have always found thorough drenchings with pure soft water from underground tanks applied early in the mornings of bright sunny days a great assistance in keeping spider in check, no blemish to the Grapes resulting if the water is pure and abundant ventilation given. Until I read Mr. Taylor's account I had never known or heard of anyone stripping the bark from Vines for red spider, but no doubt they do hibernate beneath the bark of Vines like mealy bug, and ought to be similarly sought for. I am inclined to think that, taken as a whole, quite as good, perhaps better, Grapes are grown from Vines that are judiciously stripped of bark annually, or when necessity arises, than are produced from Vines from which no bark is ever taken, as the cultivator of the former after taking infinite pains to clean his Vines will be less likely to neglect subsequent cultural details than the grower of the latter who adopts, very frequently, the "go as you please" system.—W. N., *Badminton*.

DAFFODILS AS POT PLANTS.

It is astonishing how little Daffodils are as yet used for pot culture. Every year they are more and more in demand for beds and borders, but for potting comparatively few people seem to think of them. This neglect is certainly not because they are difficult to grow, for of all easily grown bulbs perhaps these are the easiest. If potted in the autumn from September to end of October (according to the time they are required to bloom) in turfy loam with a little sand; placed on ashes in the open air, and covered with any suitable protecting material such as cocoa fibre refuse, old tan or leaves, they may be left undisturbed till December, January, or February, when, if brought into a cool house, the leaves will soon make rapid growth, and a little additional heat will quickly bring out the blooms. But it must be borne in mind that the more gradually the bulbs are brought on the finer and more lasting will the blooms be.

A mistake which is often made with these and other bulbs is to attempt forcing before the roots have taken full possession of the soil. The only way to have extra early flowers is to pot early. About five bulbs in a good sized pot will give more satisfaction than a less number in smaller pots, but of course the bulb itself will to a certain extent determine the size of pot and the number required for it.

The best Daffodils are certainly somewhat high in price, but this is more apparent than real, for after flowering they are not useless like Hyacinths and Tulips, but if ripened in the pots and afterwards planted out in the border they will bloom well the following spring.

Certainly nothing can be more gracefully beautiful for conservatory decoration than these charming spring flowers; to my mind neither Hyacinths nor Tulips—bright and welcome as they are—are fit to compare with them. The long time the blooms will last in perfection in a cool house is wonderful, nothing but Orchids can equal them. I saw some beautiful blooms of *Maximus* on February 17th, which I was assured had been out since just after Christmas.

The following are a few of the very best Daffodils for pot culture, though doubtless many others would succeed admirably:—*Emperor*, *Empress*, *Horsfieldi*, *Bicolor grande*, *Maximus*, *Golden Spur*, *Obvallaris*, *Countess of Annesley*, *Princeps*, *Sir Watkin*, *Barri Conspicuus*, *Cynosure*, *Poeticus Ornatus*, and the old double Daffodil.

I hope these few remarks may induce some of those who have passed over the Daffodil as a pot plant to give it a trial in the future, and I feel sure they will have no cause for regret.—J. DUNCAN PEARSON, *Chilwell*.

WEIGHTS AND MEASURES OF FRUIT AND VEGETABLES.

I QUITE agree with your Lincolnshire correspondent that it would be for the advantage of growers at large if a definite scale of weights and measures were adopted by growers for sale throughout the country. I myself do not think it could be done without the intervention of Parliament, as growers in all districts would think their own the most satisfactory.

In my district (Vale of Evesham) vegetables and fruit are chiefly sold by the pot—viz., Potatoes, 80 lbs.; Peas, Beans, and Brussels Sprouts, 40 lbs.; Parsley, 20 lbs.; Walnuts, green, for pickling, 72 lbs.; Apples, 64 lbs.; Pears and Plums, 72 lbs.; Gooseberries, 64 lbs.; Cherries, Currants, Red and Black, by the side, 63 lbs.; Asparagus by the bundle, called 100, containing 120 buds (the practice of making all bundles a certain weight, 5 lbs., is gradually being introduced); Strawberries in punnets, about 14 ozs., and by the lb. in sieves and trays; Radishes by the score, 260 bunches, about seven to nine in a bunch, according to size and season, the bunches larger as they get cheaper; Parsnips, Carrots, Turnips, and Onions (not green) are sold by weight, about two pots to the cwt.; Carrots and Turnips are sold in bunches early in the season, about four or five to the bunch, thirteen to the dozen; Vegetable Marrows, Cauliflowers, Savoys, Sage (bunches, a handful), pickling Cabbage, and ridge Cucumbers, thirteen to the dozen.

Cabbage and Lettuce (Cabbage Cos are not grown about here in any quantity) are generally sold by the pot—that is, the hamper fairly filled—Cabbage, two to three dozen; Lettuce, six to eight dozen. All young plants for planting out are sold six score to the hundred.

It makes it very awkward when fruit and vegetables are consigned to Covent Garden to be sold on commission from this district, as their weights and measures differ from ours.

Hoping the above may be the means of eliciting some salesmen's and other's opinion.—MARKET GROWER.

It may be stated without contradiction that growers and sellers of garden produce are labouring under the injustice of the unwritten law of local customs more than any other traders, farmers not excepted, in the mode of disposing of their wares. As opinions on the above subject were invited by a correspondent of February 14th, perhaps a few extracts out of the Weights and Measures Act, 1878–89, would be helpful. Fortunately the Act is in force, and the sooner its provisions are taken advantage of the sooner the existing confusion will be done with. Section 3 of the Act provides that "The same weights and measures shall be used throughout the United Kingdom." Section 19, "Every contract, bargain, sale, or dealing made or had in the United Kingdom for any work, goods, or wares shall be deemed to be made and had according to one of the Imperial weights or measures ascertained by this Act, or to some multiple or part thereof, and if not so made shall be void." Again, the same section states that "No local or customary measures, nor the use of the heaped measure, shall be lawful."

To use the mildest term possible, it is absurd to buy by the stone or any other imperial denomination, and at the same time to demand 16, 18, or 20 lbs. to the stone, when the Act provides, section 14, that "A stone shall consist of 14 imperial standard lbs." The public could not get more than 16 ozs. to the lb. from the retailers. Taking one example of your correspondent's; Potatoes are sold at 20 lbs. to the stone (lucky middleman) in a hobbet, or four bushels; instead of 224 lbs., or 16 stones, he gets 320 lbs., or 22½ stones; but as it is done with the knowledge of the vendor, there is no remedy, nor is a further Act needed, as if the one in force were taken advantage of, it is sufficient.

The remedy is in the seller's hands, but collective action is necessary. Licensed victuallers have taken steps in some districts to discontinue the old custom of "long pull," and to give only the imperial measure. Let market gardeners do likewise, combine and enforce their rights; justice is on their side.—VERNIER.



THE WEATHER IN LONDON.—The weather on Wednesday morning though bright and clear was still cold. The sun gains power in the daytime, but beyond that there is not much prospect of a rapid thaw; at 9 A.M. the thermometer in the City read 35°, and on Tuesday morning registered several degrees below freezing. Rain fell on Sunday last, and a rapid thaw seemed imminent, but an unwelcome return of colder weather followed.

— **WEATHER IN THE NORTH.**—The frost fell from 18° on the 20th to 9° on the morning of Friday last, when a thaw set in in the early part of the day. This continued, with the aid of a west wind, to tell effectively throughout Saturday, but on Sunday the wind had returned to the north-west, and though still fresh the day was cold. Frost returned at night, and 6° were registered on Monday and Tuesday mornings. The former was a beautiful day, the latter rather dull in the morning, but the wind again in the west and the thermometer at 41°.—B. D., *S. Perthshire*.

— **NURSERYMEN AND MARKET GARDENERS' HAILSTORM INSURANCE.**—Just as we are preparing for press we receive a prospectus on this subject. It states that the Corporation has been formed for the purpose of affording greater facilities in respect of the insurance of glass structures against damage by hail, as the rates of companies which effect such insurances are so high as to be to a large extent prohibitive. Application is made for shares, in order to raise a capital of £100,000. Considerable promises of support have been received, and it is proposed to commence business by the 1st of March. Mr. Harry J. Veitch is Chairman of the Board of Directors, and Mr. A. J. Monro Secretary *pro tem*. Offices: 1 and 2, King Street, Covent Garden, W.C.

— **PROFESSOR BALFOUR.**—We see it announced that Dr. J. B. Balfour of Edinburgh has been elected a member of the Athenæum Club. Professor Balfour occupies the Botanical Chair in the University of Edinburgh, a position which was held by his father for thirty-four years. Professor Balfour takes great interest in the extension of forestry on systematic lines. He is a distinguished botanist, and highly esteemed in Edinburgh society.

— **DEATH OF LORD ABERDARE.**—We record with much regret the death of Lord Aberdare, who will be remembered by many of our friends as having occupied the position of President of the Royal Horticultural Society at a critical period of its career. His Lordship succeeded Lord Bury in 1875, when the skating rink policy of the South Kensingtonians was overturned. Lord Aberdare displayed great ability in the exciting meetings which followed, and made himself highly popular with horticulturists. His Lordship took great interest in educational and social matters, and has left the stamp of his intellect on the legislative enactments of the kingdom. Lord Aberdare died in London on Monday night in the eightieth year of his age.

— **A NEW ASYLUM FOR SUNDERLAND AT RYHOPE.**—The Visiting Committee of the Asylum has, with the Borough engineer (Mr. R. S. Rounthwaite), for some time past been considering the best arrangement for the laying out of the extensive grounds adjoining the new Asylum at Ryhope, and have just accepted the tender of Messrs. Wm. Fell & Co., nurserymen, Hexham, whose plans they have preferred for the laying out of the grounds, the supply of ornamental trees, and the planting of the same.

— **CRYSTAL PALACE SHOWS.**—The shows of flowers, plants, and fruit at the Crystal Palace during 1895 will be as follows:—Spring exhibition of plants, flowers, &c., Saturday, March 16th; the National Rose Society's exhibition of Roses and the London Pansy and Violet Society's show, Saturday, July 6th; the National Carnation and Picotee Society's show, Wednesday, July 24th; the National Co-operative flower, fruit, and vegetable show, August 17th or 24th; the National Dahlia Society's show, Friday and Saturday, September 6th and 7th; the Royal Horticultural Society's exhibition of British-grown fruit, September 26th, 27th, and 28th; Chrysanthemum exhibition, Friday and Saturday, November 1st and 2nd.

— **PROFESSOR GREENE** of the University of California has accepted the Chair of Botany in the Catholic University of Washington. Professor Greene intends, however, to continue his work in connection with the botany of California.

— **GARDENING APPOINTMENT.**—Mr. Joseph Brooks, who for a short time has managed the gardens at Withington Hall, Cheshire, for the trustees, has been appointed head gardener to Ernest Frank, Esq., who has recently taken a lease of the mansion.

— **A LARGE TOMATO.**—On page 162 there is a note respecting a large Tomato, and it appears to me that the grower claims it to be the largest on record. If so, he is certainly mistaken, for I well remember cutting one whilst a journeyman which scaled 3 lbs. 15½ ozs. The variety was Hathaway's Excelsior; it was an ugly monster, but it was one Tomato.—W. S. E.

— **THICKNESS OF ICE.**—At Alton Towers, Staffordshire, the frost has been so severe during the month of February that the ice on the lake was frozen to a depth of 16 inches. So far as is known this is the greatest thickness on record. During the severe weather men have been engaged in cutting out huge blocks of ice by the aid of cross-cut saws for storing away in suitable places for future use.

— **THE SIPHON IN GARDENING.**—In many cases cisterns and other bodies containing water could be very easily emptied or the water conveyed from place to place by siphons, where it is now conveyed by hand utensils. A common garden hose will do this as well as anything else. All that is necessary, says "Meehan's Monthly," is to fill the hose entirely with water first before placing it in the cistern, and then to be certain that the outlet is lower than the source of supply.

— **ROOT-PRUNING IN SUMMER.**—Having read with considerable interest on page 43 an article entitled, "Roots in Winter, Do They Work," and finding your correspondent has been very successful in summer root-pruning old fruit trees, and as he writes that it would be a gain to root-prune in the summer instead of winter, I should like him to know that at our local meeting of gardeners and amateurs the question was discussed, and the unanimous answer was "Root-prune in the summer if you wish to kill your trees." Not having any personal experience of summer root-pruning, I shall be glad of any more information I can gain on the subject.—H. C.

— **SAINTPAULIA IONANTHA.**—In his interesting article on "Timely Suggestions" (page 158) your correspondent, "E. K., Dublin," incidentally mentions this as a novelty likely to be in considerable demand owing to its attractive name. Although offered as a novelty of this year in some seed lists, it was in fact one of last year's introductions. I had the pleasure of seeing it in flower, and consider it well worth growing for its beauty. One can only hope that it may prove amenable to greenhouse cultivation, as it would thus find its way into the favour of many amateurs who do not possess a stove. Of attractive habit of growth, and with flowers of the most charming colour, it is very desirable indeed.—S. ARNOTT.

— **ORCHIDS AT THE WASHINGTON BOTANICAL GARDENS.**—This splendid collection of Orchids had a narrow escape from freezing on January 13th and 14th. Late on the night of the 13th the boiler burst. The Superintendent called his men together, and before the house had time to cool, rude charcoal stoves were improvised, and fires started throughout the building. The workmen were up all the Saturday and Monday nights watching the thermometer, and small gasoline stoves were brought into requisition until a new boiler was secured and placed in position. The old boiler had been in use fourteen years. Superintendent Smith states not an Orchid has been injured, although it was hard work with the makeshift apparatus to keep up the necessary temperature.

— **NATIONAL CARNATION AND PICOTEE SOCIETY** (Southern Section).—The Committee, in issuing the eighteenth annual report of the Society, record the gratifying fact of a substantial increase in membership; it is also pleasing to observe that the finances are in a satisfactory state, the balance of £118 5s. 4d. in 1893 having increased to £159 13s. 7½d. in 1894. Embodied in the report are selections of the best varieties of Carnations and Picotees, a record of new varieties certificated during the past year, also a return of prizewinners and their varieties during the past season. The Society has a distinguished list of patrons, with the accomplished amateur, Martin R. Smith, Esq., President, Mr. T. G. Henward, Hon. Treasurer, and Mr. James Douglas, Barking Side, Ilford, Hon. Secretary.

— IN the most recent part of the "Records of the Botanical Survey of India," the Indian Government publishes a report of a botanical tour in Kashmir, by Mr. J. F. Duthie, Director of the Botanical Department of Northern India, accompanied by a map.

— WATER LILIES AND THE FROST.—Mons. Latour-Marliac writes, saying that although they have not been spared the severity of this winter they have not to regret the loss of any plants through it, and his beautiful collection of Water Lilies is awaiting the end of all the tempests to open their leaves and buds to the sun.

— TADCASTER PAXTON SOCIETY.—At a well-attended meeting of this Society, held recently, a paper was read by Mr. McIntosh of York on the "Cultivation of Chrysanthemums." The paper dealt at some length on the pinching-back system, as applied to plants intended to be used in masses together and groups. Much interest was taken by the audience in the subject-matter, from the fact that the author is a well-known Chrysanthemum grower and exhibitor in York.

— EXAMINATIONS IN HORTICULTURE.—Allow me through the medium of your valuable Journal to draw attention to a subject which I think is now engaging the thoughts of many young gardeners—viz., the examinations in horticulture, announced to be held by the Royal Horticultural Society next May. These examinations are indeed a great encouragement to young men who are striving to become competent gardeners, and to this end spend their leisure time in reading and studying works pertaining to horticultural matters. Surprise has been expressed that more of such men do not present themselves as candidates for examination each succeeding year. There is one point which naturally deters many from doing so—viz., candidates are not limited to age, and as everyone knows experience teaches, we young gardeners have little chance of success, but must inevitably get "plucked" when our chiefs grasp the pen. I shall be obliged by your inserting this in the *Journal of Horticulture*.—A YOUNG GARDENER.

— WAKEFIELD PAXTON SOCIETY.—At the weekly meeting of the Paxton Society, held Saturday the 16th inst., Mr. B. Whiteley presided, and Mr. Brown was in the vice-chair. A long, very able, and most interesting paper on "Microbes: Their Life History and Work," had been prepared by Mr. G. C. Ramsden, who has acted as the Society's Honorary Librarian for many years, and it was read on his behalf by Mr. G. W. Fallas, the senior Honorary Secretary. The paper contained a vast amount of interesting information; it clearly showed that Mr. Ramsden must have devoted considerable time to its preparation, and that he is thoroughly acquainted with the subject with which he dealt. Dr. Clark of the Yorkshire College, Leeds, opened a discussion on the paper by some lengthy and appropriate observations. He alluded to Mr. Ramsden's paper in very eulogistic terms, saying that it was impossible to say too much as to the accuracy of the statements it contained, and it was quite astonishing to find anyone living in a provincial town, and not having access to such libraries as were to be found in the metropolis, who could give so much information on such a subject.

— LEEDS PAXTON SOCIETY.—The ninth annual dinner of this Society was held on Wednesday evening last week at the Nag's Head Hotel, Upper Head Row, Leeds, Mr. H. Foster (President) in the chair, when about seventy sat down to a most excellent repast. Delegates from Leeds, Bradford, and Sheffield Chrysanthemum Societies were present. After the usual loyal and patriotic toasts had been duly honoured, the Secretary read the annual report and balance sheet, from which the Society appears to be steadily gaining in numbers, and also financially, having now some 113 members, and a balance of £3 10s. 10d. in the bank, in addition to which the sum of £3 7s. 6d. had been handed to the Royal Gardeners' Orphan Fund. The addition of exhibits, as well as essays at the meetings, had proved a greater inducement in the attendance of members, and the Committee look forward to a successful season. The balance sheet and report of the Chrysanthemum show was in the same satisfactory condition, and both were unanimously adopted. Mr. Housley, of Sheffield, in proposing "Success to the Leeds Paxton Society," suggested that a greater amount of interest would be centered in the meetings of all horticultural societies if the secretaries of each would correspond with each other and cause an interchange of essayists; it would be eminently beneficial in showing probably the different treatment of plants and crops grown under different climatic and other conditions. The other toasts which were duly honoured were "City and Trade of Leeds," proposed by W. Holbrook, Esq.; "The Leeds Chrysanthemum Show," "Kindred Societies," and "Essayists," and harmony being interspersed with the toasts caused a most pleasant evening to come to a close all too soon.

— PRIMULA BLOOMS.—A collection of Primula blooms have recently been sent to us from Messrs. H. Cannell & Sons of Swanley, Kent. The pips are very fine, and of rich colour, the collection containing a great diversity of delicate tints in colouring, and plainly indicate from their excellent form and substance that a high standard of cultivation has been attained.

— WEATHER AT LIVERPOOL.—After nearly two months of unusually severe frost a change occurred last Friday, and on Sunday morning we had a heavy fall of rain, but frost has again returned. The three highest night temperatures in February, 26°, 34°, and 27° respectively; the lowest, 26°, 28°, and 25° of frost. Ice on a sheltered fish-pond in the garden has been from 10 to 12 inches in thickness. The damage done to green vegetables and spring bedding appears to be very extensive; but until a general thaw takes place it is difficult to speak with certainty.—R. P. R.

— HEREFORDSHIRE CIDER.—A daily paper says:—"Mr. Justice Grantham has made a discovery which is nothing less than the origin of evil. He told the Grand Jury at Hereford on Monday that he had heard for some time that so far as that county was concerned it owed its comparative immunity from physical disorders to the fact that Herefordshire was a great cider-drinking county. He had come to the conclusion that cider had the same effect on the moral as on the physical man, and that they owed their great freedom from crime, if he might say so, to the fact that Herefordshire people drank cider. If that was the case, he hoped other counties would follow the example."

— SCOTTISH PANSY AND VIOLA ASSOCIATION.—This Association has been formed in Glasgow, to meet monthly during the summer, to consider new varieties of Pansies and Violas, and to award certificates for those deemed worthy. The following seven gentlemen have been appointed judges:—Messrs. J. Baxter, Daldowie; W. Cuthbertson, Rotbesay; M. Gray, Glasgow; M. Campbell, Blantyre; J. Stuart, Lennoxton; W. Maxwell, Glasgow; and H. Hamilton, Lochwinnoch. The judges are to give their verdict by ballot. Varieties which receive three-fourths of the total number of points shall receive a first-class certificate, and those receiving one-half or more of the total number a certificate of merit. Another feature will be the granting of special certificates for constancy to varieties which obtain a first-class certificate at three meetings. Such certificates and decisions, it is hoped, will prove valuable guides to the public, and tend to set up a standard for new varieties. The membership of the new Association is open to all on the payment of a nominal subscription of 1s., and provision is made for the reception of flowers by post, which shall be as carefully handled and adjudicated as if they were personally staged by the exhibitors. The following are the office bearers, any of whom will be glad to send a copy of constitution and rules of the new Association to interested parties:—President, Mr. W. Cuthbertson, Springfield, Rotbesay; Vice-President, Mr. Jno. Baxter, Daldowie; Treasurer, Mr. Jas. Robertson, Turnerfield, Crow Road, Partick; Secretary, Mr. Jno. Smellie, Pansy Gardens, Busby.

— ROYAL METEOROLOGICAL SOCIETY.—At the last monthly meeting of this Society Mr. W. Marriott gave an account of the thunderstorm and squall which burst over London so suddenly on the morning of January 23rd. It appears that this storm passed across England in a south-south-easterly direction, at the rate of about forty-seven miles an hour, being over Northumberland at 4 A.M., and reaching the English Channel by 11 A.M. Thunder was first heard in the vicinity of Leeds, and accompanied the storm in its progress across the country. One of the most remarkable features of the storm was the sudden increase in the force of the wind, for in London it rose almost at one bound from nearly a calm to a velocity of thirty-six miles an hour. This sudden increase of wind caused considerable damage, and at Bramley, near Guildford, twenty-eight trees were blown down along a track 1860 yards in length. Mr. E. Mawley presented his report on the phenological observations for 1894. Between the third week in March and the third week in May plants generally came into blossom in advance of their usual time, and towards the end of April the dates of first flowering differed but little from those recorded at the same period in the very forward spring of 1893. The cuckoo made its appearance even earlier than in the previous year. The year 1894 was a very productive one, and both the hay and corn crops proved unusually heavy, but much of the latter was harvested under very trying conditions as regards weather. The frosts of May 21st and 22nd entirely destroyed the previous prospect of a glorious fruit season; indeed, the only really good crop was that of Pears, which were singularly abundant throughout nearly the whole of England.

— **AMERICAN POMOLOGICAL SOCIETY.**—The biennial convention of this Society in California was a very successful affair. The visiting delegates were entertained with liberal cordiality. The papers and discussions at the meetings were mainly of interest to the Pacific coast. The Society re-elected the old list of officers, including P. J. Berckmans of Georgia, President; B. G. Smith of Massachusetts, Treasurer; and G. C. Brackett of Kansas, Secretary.

— **HONOUR TO A NORTH COUNTRY HORTICULTURIST.**—The Corporation of Sunderland, by virtue of the 62nd Clause of the New Local Government Act, has taken the whole of the Sunderland cemeteries under its charge. These consist of Sunderland, Bishop Wearmouth, and Mere Knolls, containing 112 acres. The Corporation agreed to have one chief official for all, the office to be termed "Chief Clerk and General Superintendent of Cemeteries," and without advertising the Cemetery Committee decided to offer Mr. W. J. Bolam, F.R.H.S., Superintendent and Registrar of Sunderland Cemetery, the position, which he has accepted. Mr. Bolam was for many years manager for the late Mr. Harrison, the noted Rose grower at Darlington, and has been for the last twenty years Superintendent and Registrar of the Sunderland Cemetery; he is also Chairman of the Sunderland Horticultural Mutual Improvement Association. He will have responsible duties to perform, but he is an accomplished book-keeper, a skilful horticulturist, and an expert in cemetery management, therefore well qualified to discharge the duties. The salary commences at £180 per annum, with free house, coals, gas, garden, and water. He will have an office in the Town Hall, Sunderland, and telephonic communication with the officials in charge of the cemeteries to assist him in carrying out the various details of his duties.—**BERNARD COWAN, F.R.H.S.**

— **MOVING TREES.**—In "Meehan's Monthly" for February the sound advice is given to dig a trench before spring growth begins around large trees which are to be moved. The inside of the trench should be 2 feet from the butt or more, according to the size of the tree. It should be deep enough to cut off most of the roots 2 feet at least, and the trench should be carefully filled up with good soil, which should be firmly packed about the ball. Next autumn many new roots will have been formed, and the transplanting of the tree will be much more easy and more certainly successful. When the trench is dug the top of the tree should be pruned back, though not as severely as if the planting was to take place immediately.

— **FALSE PRETENCES.**—At the Southwark Police Court last week Charles Samuel Robinson, a farmer of Pinchbeck, near Spalding, Lincolnshire, was charged with obtaining the sum of £73 14s. from Messrs. Cooper, Taber & Co. (Limited), seed merchants, of 90, Southwark Street, by false pretences. Mr. J. P. Grain (instructed by Mr. Chas. Butcher) appeared for the prosecution, and Mr. Stile, solicitor, of Spalding, defended. Mr. Stile said the prisoner would plead guilty to the charge, and wished to have the case settled here. Mr. Slade said he had no power to deal with it, and that the prisoner must be committed. It appeared that prior to 1892 the prosecutors had done business with Messrs. Robinson, farmers, of Lincolnshire, who were relatives of the defendant. In July, 1892, Messrs. Cooper, Taber & Co. received a letter from the defendant asking them if they wanted any Turnip seed grown that year, as he (the prisoner) had 20 acres of land ready for the purpose. A contract was entered into by which the prosecutors were to supply prisoner with seed to sow the 20 acres, and the produce of the seed, when gathered, was to be sold to the prosecutors at 14s. 6d. per bushel. Subsequently the prisoner represented to the prosecutors that part of his land he had found unsuitable for sowing the seed, and he had sub-contracted with a neighbouring farmer named Orbell to sow part of the seed, which he asked the prosecutors to take from him at 13s. 9d. per bushel, so that he might realise a profit. This they agreed to do, but eventually the prosecutors received a further intimation from the prisoner that Orbell would not part with his produce under £1 a bushel, as he had received even a better offer than that. Owing to the defendant's representations the prosecutors were induced to take the whole of Orbell's growing, which amounted to 246 bushels, for which they paid the prisoner. In 1894 Orbell happened to have an interview with Mr. H. T. Huggins (prosecutors' manager), when this transaction was first brought to Orbell's knowledge. The latter then said that he had fulfilled his part of the contract with Robinson, whose cheque he received for 246 bushels at the rate of 13s. 9d. per bushel. He had never demanded £1 a bushel, and the whole story of the prisoner was a fabrication. The prisoner was committed for trial at the March sessions. Mr. Slade offered to take bail, the prisoner in £200, and two sureties of £100 each.

— **THE ARGENTINA VINEYARDS.**—These have been largely extended during the past few years, and wine-producing has already become an important industry. The principal Vine grown is the French Cot-Rouge, and in the Cuyo provinces of the Argentine Republic the pests known as mildew, black rot, and phylloxera do not occur in consequence of the dryness of the climate. It has been estimated that there are, in round numbers, 82,500 acres of vineyards in the Republic. These, when fully established, or within three years' time, should yield on an average some 329,500 tons of Grapes per year. These figures, according to French averages, should be equal to 42,800,000 gallons of wine.

— **ORIENTAL LILIES.**—I recently wrote to Mr. J. G. Baker, asking him what Lilies succeeded best at Kew. The following is his reply, which will, I know, prove interesting to the readers of the Journal:—"I think the Lilies that make the finest show at Kew are longiflorum, tigrinum splendens, superbum, and pardalinum, all of which are grown in great numbers here. The soil, however, is very sandy, and consequently not well adapted for Lily cultivation. Lilium Henryi is a very fine plant, and has now become fully established. The first to flower here are L. pyrenaicum and L. testaceum. Lilium Harrisii is merely longiflorum taken out to Bermuda, where it seems to have taken on a new lease of strength and vitality, and then sent back to Europe. The latest introductions are the three species from Upper Burmah (L. Lowi, L. sulphureum, also called Wallichianum superbum, and L. nepalense), of which sulphureum is succeeding much the best. It is a very fine, tall species, but requires shelter even here. I have received information from Paris of ten or a dozen new species lately found by the French missionaries in the Western Chinas, none of which has yet been introduced alive." I have nothing to add to Mr. Baker's interesting communication, unless that, having cultivated sulphureum and its beautiful Indian companion nepalense, I have discovered that they are not adapted by Nature for open-air culture, requiring at any rate in the first place to be forced into activity by a warm conservatory. It is quite possible, however, that after being started in this artificial manner sulphureum might, under favourable conditions, be transplanted to the garden with some prospect of success.—**DAVID R. WILLIAMSON.**

— **PRESERVING POTATOES.**—One of the obstacles to the preservation of Potatoes is the sprouting of the tubers. As soon as the tuber is put into any place favourable in temperature and moisture the tuber will begin to grow, and therefore deteriorates as an article of food. A growing Potato is always more or less a loss, and is not so well able to feed either man or animal. The nutritive matter is slowly consumed by the germ, and the tuber subsequently becomes a source of danger to man as well as beasts. There was only known one way of stopping the growth. This consisted of taking out the eyes with a knife, a proceeding which is very slow; and very frequently in doing it the tuber was bruised. For three years now, says the "Mark Lane Express," Mons. Schaibaw has tried at the French Agronomic Institute another mode, which has been found effectual. It consists of treating the Potatoes with sulphuric acid. Take a large tub and fill it three parts full with water, add sulphuric acid to make a 2 per cent. solution. The Potatoes are placed in the solution, and kept there for about twelve hours; they are then withdrawn and dried, and their preservation is absolutely secured. If the solution is stronger a less time is required; with a 3 per cent., five to eight hours' immersion is sufficient, and with a 4 per cent. solution three to six hours' immersion will be effectual. The dissolved sulphuric acid attacks the germs on the surface, and quite kills them. Some persons have objected to this method, stating that it was dangerous both for man and animals, but this fear is said to be chimerical, because the amount of sulphuric acid remaining on the surface of the Potatoes is very slight, and the seltzer water used daily by thousands of people contains considerably more of this acid. Furthermore, Potatoes are used as human food without the skin, and the acid does not penetrate into the flesh.

THE CHARLES COLLINS' FUND.

WE have pleasure in announcing the following subscriptions received during the past week by the Treasurer towards this very deserving case:—

	£	s.	d.		£	s.	d.
Amount previously ac-				R. Lye	0	2	6
knowledged	54	7	0	F. Sander & Co. ...	1	1	0
T. F. Rivers	0	10	6	J. Grice	0	5	0
J. R. Pearson & Sons ...	1	1	0	A. F. Barron	0	10	0
G. Wythes... ..	0	10	0	Sir Edwin Saunders ...	2	2	0
A. P. Christie	0	2	6	J. Smith	0	5	0

EREMURI.

AMONG plants of comparatively recent introduction few have excited so much interest in the ranks of hardy flower growers as the Eremuri. I am saying, "comparatively recent introduction" advisedly, for it appears that one of the genus, *Eremurus robustus*, was first introduced to this country in 1874, or twenty years ago, a time which one would have thought sufficient to enable it to be found in almost every good collection in the country. The Eremuri are, however, plants of which no one can at present speak with any degree of confidence, and there are several causes which prevent their wide distribution and cultivation. They are, notwithstanding, so majestic and withal so beautiful (for majesty and beauty in flowers are not always combined), that when seen they invariably give rise to a desire to grow such noble flowers.

It is thus well worth our while devoting some attention to these stately Asphodel-like plants, and while dealing only briefly with the species from a botanical or descriptive point of view, to gather together and present as a whole the experience of several, besides myself, who have been trying to succeed with their cultivation. Thus, I shall endeavour to speak as shortly as possible of the genus *Eremurus* and its species, and afterwards to tell of the methods adopted and the success or failure which follows.

The Eremuri belong to the Natural Order Liliaceæ, and the name has been derived from *eremos*, solitary; and *oura*, a tail, in allusion to the form of the spike. Their native habitats extend over a wide region, these plants being found in Northern India, Persia, and Central Asia; and it is perhaps to the peculiarities of the climates of these countries that we must ascribe some of the cultural difficulties we have to encounter. According to botanists there are some eighteen or nineteen species, but the number in cultivation in our British gardens is much smaller, those principally grown being *E. robustus*, *E. Olga*, *E. himalaicus*, and *E. Bungei*. Of *E. robustus*, which is the best known, there are at least three varieties, but so seldom are these seen in flower together that one would feel it a favour if someone who has flowered the three would describe the difference between them.

There are—first, the type; second, an intermediate form; and third, the variety named *E. robustus nobilis* or *Elwesii*. The height of *E. robustus* varies considerably, being from 6 feet upwards, and its great flower stem, surmounted by a raceme of densely arranged peach-coloured flowers, renders it a striking object. The Rev. F. Page Roberts, of Scole Rectory, to whom, with Mr. W. E. Gumbleton, of Belgrove, Queenstown, and several others, I have to express my obligations for so kindly writing to me, flowered a spike of *E. robustus* this year, which when measured before attaining its full size was 10 feet 8 inches high. It was figured in the *Journal of Horticulture* for September 20th, 1894. I am disposed to think that Mr. Page Roberts' variety must be that named *nobilis*, as Mr. Gumbleton, who is perhaps better acquainted with the Eremuri than any other amateur in the kingdom, speaks of *nobilis* giving him a "grand spike 7 feet 7 inches in height," and the others I have seen or received particulars of were generally about 6 or 7 feet high. The intermediate variety, Mr. Gumbleton informs me, grows into great clumps in the garden of Professor Michael Foster, at Shelford, near Cambridge. *E. robustus* flowers in June and is a native of Turkestan.

Of *E. Olga*, I regret to say, I have not a great deal of information to give. It flowers later than *robustus*, generally in July, and grows from 4 to 6 feet in height, having a spike of very large lilac flowers. It comes from the same country as *E. robustus*, and was introduced by Dr. Regel about 1891. *E. himalaicus* is one of the very finest, but unfortunately is still one of the most expensive. So far as I understand Mr. Gumbleton was the first to introduce this beautiful species, and he finds it the most satisfactory. The flowers are white, about as large as a two-shilling piece, and are produced on stems which are from 6 to 8 feet high. *E. himalaicus* was introduced from the Himalayas in 1881.

E. Bungei, introduced from Persia in 1885, is one of the most inexpensive, and seems comparatively easy to procure. It is, however, of dwarf habit, and of much less imposing appearance than the other species, its stems being from 1 to 3 feet high. The flowers produced in July are bright yellow, and the raceme is about 5 or 6 inches in length. Of the other species rarely met with, *E. aurantiacus*, citron yellow; *E. spectabilis*, sulphur coloured, and *E. Korolkowi*, rose coloured, may be mentioned. *E. turkestanicus*, or what has been sold as such, is a poor plant hardly worthy to be mentioned in the same breath as *E. robustus*. Enough has, perhaps, been said on this head, and I shall proceed to discuss various other points relating to the cultivation of the Eremuri or Eremuruses, as I should prefer to call them, although the termination is not the correct one.

One great obstacle in the way of the more rapid distribution of the Eremurus has been the cost of the plants. They are mostly, as

yet, beyond the reach of the ordinary amateur or of the gardener whose garden allowance is not of the most liberal kind. I have heard of £2 2s. being paid for a plant of *E. robustus nobilis*, and last summer I saw a plant of *E. robustus* for which 15s. had been paid the previous year, and which may not flower for a year or two. It is true that plants may be obtained more cheaply from the Continent, but too often they are so small that it will be some years before they flower. Another objection to continental-bought plants is that they do not generally come to hand until autumn, when they have made some of their root-growth, and these roots being frequently injured, little growth is made the first year. It has now been definitely discovered that the Eremurus makes fresh roots every year, and that it can most safely be removed about July.

Another hindrance to the cultivation of these noble flowers is the time taken by small plants to attain a flowering size. I have never grown Eremuruses from seed until they attained a flowering stage, my seedlings having succumbed to the attacks of slugs long before they were large enough to flower, but so far as I can learn they do not usually flower before their seventh year. In saying this, I am, however, speaking subject to correction. There must at present be large numbers of seedling Eremuri in the country, and, while they will gradually reduce the price of plants, purchasers would do well to ascertain, as far as they can, the age of the plant purchased, and, unless disposed to wait for years, to avoid a young one. To raise these noble flowers from seed is, as will be seen, weary work, involving patience greater than most possess before any great result will follow. To make the matter still worse very few of the seeds purchased in spring germinate until the following year. I have at present seeds of *E. Kauffmanni* and *E. himalaicus* which were sown in February, 1894, and from two ordinary sized packets of seed only one plant appeared before Christmas. I expect a fair number will vegetate in the spring.

I think it will thus be apparent that the intending grower of Eremuri should procure plants of six or seven years of age in July, and plant in a carefully prepared bed or border of good soil. They do not seem very particular as to the kind of soil if it is of good quality, and they have a free run for their great, fleshy roots, which extend to several feet from the rootstock. The position should be a sunny one, as, like other plants from Central Asia, the Eremurus requires to be thoroughly ripened off. It must also be sheltered, and, from bitter experience, I must emphasise the point of shelter, as in my garden it is almost impossible to find a part sufficiently sheltered, their long thick, and fleshy, but elegant leaves, being exceedingly brittle, and when bent decaying rapidly, with the almost certain effect of weakening the plant. In the spring of 1894 my plants suffered much from a severe gale which sprung up during the night and shattered the leaves. Another piece of advice one would give is not to carpet the space occupied by the roots with other plants lest the ripening process should be prevented. In planting I think it desirable to keep the crowns a little below the surface.

The young growths of the Eremuri appear late in the winter or early spring, and if not protected from sharp frosts the tips of the leaves will become browned, and they will be correspondingly disfigured the whole season. This protection should be continued until danger from frost is past, but it must be of a kind easily removable, and should be taken off while the weather is mild. A flower-pot of good size is a method of protection which is readily applied or removed; but a small hand-light is also convenient, and not so likely to harbour slugs—the pests of pests which plague the Eremurus. A collar of zinc is, however, a valuable protection, and if notched on the top, or made of perforated zinc, will turn the most devoted gastropods, which seem to appreciate the edible qualities of the Eremurus, even more than the natives of its habitats who use it as a vegetable.

It is evident that my remarks on the Eremuri are far from optimistic; and still another point remains, which, it is to be feared, is the "unkindest cut of all." This is, to expect several of the species to die after flowering; for such is the consensus of experience with the Eremurus in this kingdom. Happy is he who can manage to retain his plants until they bloom, for too many only linger a few years to die. Happier is he who can succeed in inducing these stately Eremuri to raise their tall stems decorated with beautiful flowers; but thrice happy is he who can preserve his plants after they have bloomed, as it is the almost universal experience that they die after flowering. There are, however, exceptional gardens, such as that of Professor Foster, where the Eremurus becomes established, and *E. himalaicus* is generally the most permanent.

Several good growers attribute the death of the Eremurus after blooming to the want of proper ripening, but I am disposed to consider it due to exhaustion. It seems singular that these plants may live for several years in the same garden and then die after

blooming. On the other hand, in justice to those who hold a different view, some do not succeed in keeping them alive even without flowering. If exhaustion is the cause there is no remedy, and we must have recourse either to raising seedlings or purchasing new plants. On the other hand, should the loss be owing to want of ripening this may be met by covering the plants and the roots so far as they extend with glass, and trying to secure that they should have a good roasting.

This is a course we seem to find the proper one to adopt with *Ostrowskia magnifica* and with the *Oncocyclus* Irises, and we may have to adopt it with the *Eremuri*. I feel that this somewhat lengthy article is pessimistic; at least, it will appear so to some. One must, however, take things as we find them, and I am disposed to think that we will find these magnificent flowers will tax to the

growth. There is a majesty in this queen of water nymphs, the *Victoria Regia*, which not any of the vegetable wonders of the tropics can surpass, or but few equal. Then, too, it is one of those plants seldom met with, for by reason of its size and requirements but few gardens can afford the space for its cultivation. Even in those places where we are privileged to see it as at Kew or Glasnevin, the Kew of Ireland, one feels that it is a picture shorn of its margin, and to do full justice to its stateliness it is necessary to realise the free and unfettered surroundings of its native home in Guiana. But those who most admire its marvellous foliage cradled in the tank are probably inspired to complete the picture which cannot be realised here. These are unavoidable qualifications. The glorious Lily is grown and shown to the best advantage these circumstances will allow.



FIG. 35.—THE AQUATIC HOUSE AT GLASNEVIN.

utmost our cultural skill and ingenuity in growing and preserving them in our gardens. Still, *Nil desperandum* must be our motto, and we must seek not only to deserve but to achieve success.—S. ARNOTT.

THE AQUATIC HOUSE AT GLASNEVIN.

WHATEVER beauty or interest is created by Nature or Art in gardening, should water be absent as a gratification to the eye, one thing is wanting. The most striking effects in a landscape, the beauties of a demesne, or the pleasures of the garden are enhanced by the presence of water, whether it be the babbling brook, the placid lake, or the sparkling fountain.

Water plants also, even of the humblest type, are always pleasing, ever interesting. The aquatic house at the Royal Botanic Gardens, Glasnevin, is a never failing source of interest to visitors, and the most casual observer cannot fail to admire the huge Water Lily, as depicted by fig. 35, from a photograph by Miss Armstrong, during its season of

The small overshot wheel (in the background of the picture to the right) is kept slowly revolving by the supply pipe to the tank, and gives a rippling motion to the water. In its proximity to the Irish metropolis, Glasnevin is of easy access from the city, and those on pleasure bent cannot fail to derive some profitable lessons from a visit to the home of the curious, the interesting, and the beautiful, whether in the stately Palm house, amongst the thousands of Orchids, or the legions of hardy plants, shrubs, and trees, which are bound up in the encyclopædia of a botanic garden. Those more keenly interested, of the gardening profession, may also have a peep into the private houses, and find in the courteous Curator, Mr. F. W. Moore, that one touch of nature which obliterates the line between his responsible position and the more lowly of the craft.

The unpretentious village of Glasnevin has also historical points of interest to the literary inclined, being at one time the home of Sir Richard Steele, author of "The Tatler," and here Dean Swift penned his pungent satires on the Government of that day.—E. K.



ROSE SHOW FIXTURES FOR 1895.

- June 27th (Thursday).—Gloucester (N.R.S.) and Canterbury.
 „ 28th (Friday).—Exeter.
 „ 29th (Saturday).—Windsor.
 July 3rd (Wednesday).—Croydon, Ealing, and Sutton.
 „ 4th (Thursday).—Eltham and Norwich.
 „ 6th (Saturday).—Crystal Palace (N.R.S.).
 „ 9th (Tuesday).—Wolverhampton*.
 „ 10th (Wednesday).—Chelmsford and Hitchin.
 „ 11th (Thursday).—Helensburgh and Worksop.
 „ 17th (Wednesday).—Derby (N.R.S.).
 „ 18th (Thursday).—Halifax.
 „ 24th (Wednesday).—Chesterfield.
 „ 25th (Thursday).—Trentham.

* A show lasting three days.

I shall be glad to receive the dates of other Rose shows than those named above for publication in future lists.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

PRUNING ROSES FOR EXHIBITION BLOOMS.

IN a few weeks' time we shall be in the thick of this all-important business, and perhaps a few notes at the present time will not be out of place. The remarks are mainly intended for beginners and growers of limited numbers, as I know that our leviathan growers cannot bestow the necessary time that I think pruning requires, and have consequently to leave to others that which they should do themselves.

I remember once calling unexpectedly on a brother rosarian during the height of the pruning season. The grower in question is well known as a successful exhibitor and authority on the Rose. I was thoroughly disgusted at what I saw; the whole job seemed to consist in cutting the plants without any discrimination to a certain level. Mr. Amateur was leisurely slashing at the standards, and his gardener, who did not seem to know much about it, was simply cutting down the dwarfs. This, to my mind, is pruning made easy with a vengeance.

My friend admitted that he was not taking a very active part in the work himself, as experience had taught him that pruning Roses for exhibition purposes was a matter requiring very little consideration, and the great thing was to get it over as soon as possible. He went to zero in my estimation, as judging him by his writings, I had every right to consider him a practical man, but his actions proved him to be the reverse. His Roses that year were a failure. I refer to this little episode as a warning against carelessness, and I would especially caution beginners against any personal relaxation in leaving to others the all-important work of pruning.

Pruning is a science which can only be really learnt by practice and close observation. By observation, I mean not only a careful study of the wood at the time of pruning, but also an intelligent and attentive watching of the after effect, as the result should be carefully noted with a view to future operations.

From the first I have always pruned my Roses myself, and I very strongly advise amateurs to allow no one but themselves to use the knife. A practical rosarian must learn this lesson if he is to make a study of his hobby. I cannot go into detail as to which Roses should be pruned severely and which *vice versa*, but the general rule that weak growers require very close pruning may be followed.

To the ordinary amateur exhibitor I would recommend somewhat moderate pruning, as results from such treatment are more consistent than the severe pruning which is often advocated. Large growers can, by reason of the number grown, afford to adopt a drastic treatment that unquestionably does frequently produce very fine blooms. But the same result can often be obtained by a course of severe disbudding after the plants have commenced to grow, and with a greater degree of certainty, as there are then buds to fall back on in case of accidents, which is not always so when short pruning is adopted. The latter also sometimes produces nothing but wood. Choose three to five shoots with the wood well matured, and if possible, well placed; but as fine blooms are required the shape of the tree is of secondary consideration. Then cut away all rank sappy growth which is plainly useless. Sometimes these, unfortunately, have to be taken, as no other wood is available. On each shoot leave three to six eyes, and it is well to prune to a bud pointing outwards so as not to have a crowded centre, but as this bud is the first to break the object is often defeated by a late frost or the "worm i' the bud."

In May superfluous shoots may be cut off, leaving from three to eight blooms according to the strength of the plant. No hard and fast rule can be laid down, as the after-treatment in the amount of feeding has to be taken into consideration. When I commenced growing Roses the shape of the tree was an all-important matter, and I still like a shapely plant, but blooms being the desideratum it is often impossible to study both. All old wood should be cleared away, and the centre must be fairly open, so that light and air can get to all the shoots.

We sometimes find new wood that has the appearance of old being quite hard, with no pith; this should be retained, as it is sure to produce the best blooms. Such wood might be cut away in mistake by a casual workman, but the amateur who has previously pruned his plants will of course recognise it at once, and secure it, even if badly placed. I like to take a good survey of the plant to be pruned, even to the extent if necessary of going down on my knees to critically examine the condition of the wood; the time this little extra trouble takes is well spent.

I am not a faddist, but I believe the great secret of all success is hard work and attention to detail. It is advisable to have at least two sharp pruning knives, and the hone should be carried about, as the blades cannot be too sharp; a small blade is also a necessity, as all weak growth must be removed. I have always used a small thin saw, known in the trade as a keyhole saw, with great advantage, it being easy of manipulation in crowded growth that cannot be removed with the knife. Owing to the present severity of the weather pruning operations are likely to be deferred until a later date than usual this year, and the middle of March will be quite early enough to make a start, unless very warm weather comes before that date.

The above remarks apply in the main to H.P.'s, but Teas can be treated in the same way, although the frost has generally taken most of the work out of our hands. This year I am afraid many Teas will have been killed outright by the frost; but where only hard hit they should be cut well back at as late a date as possible.—R. M. D.

[We have heard of great destruction among Roses, and but of one lucky escape. Mr. George Paul had several thousands of Teas "laid in" before the frost; over these were laid some flat evergreen branches, which in turn were covered by a fortunate fall of snow. This saved the Roses, while those unprotected were killed down to the snow line. What is the result of the late zero weather in other districts?]

TOMATO HOUSES IN WINTER.

Re "Perplexed One." Fig. 22, page 136, of February 14th issue of "dear old Journal" speaks volumes. If material is handy, well managed beds of Mushrooms between October and March should beat the Tomato crop in a money point. I have found valuable hints in "Mushrooms for the Million," by J. Wright, and can now quite dispense with the dry heated Mushroom house.

Seakale, Asparagus, and Rhubarb, growing your own roots for lifting, are remunerative when forced. Saladings, Green Mint, Tarragon, with the above vegetables, always find ready sale at hotels. I have known a fortune made out of forced Rhubarb grown under plant stages, the secret being well prepared roots in the open, principally fed with night soil forked into the ground during the winter. All these could be grown in conjunction with Mushrooms.

Daffodils in all stages are much called for. Having both beauty and fashion to recommend them, I question if these ever get overdone. Such varieties as Horsfieldi, Countess of Annesley, Empress, Emperor, Sir Watkin, and other Narcissi. The same rule applies to these as the above vegetables—grow your own stock. They increase rapidly. Snowdrops, too, form a feature in this list, and are eagerly sought after at Christmas. How easily they open with gentle forcing! (I noticed a few bulbs potted and placed in a warm kitchen flowered for Christmas). Pot all bulbs early, plunge in cocoa fibre refuse till housed; very gentle heat brings them in flower for Christmas and onwards. Daffodils are potted two bulbs in 4-inch pots, long toms, standing in saucers, which are kept filled with weak stimulants, never watering over the top.

Gladiolus The Bride, planted thickly in 48's, fed from saucers, are putting up flowers; anyone can water a house of plants by this method without injury—yea, to the plants' benefit—as they flower strongly and look remarkably healthy. Lillium Harrisii, by potting first importations, may be flowered in February. The plants are now showing strong buds, averaging five from a bulb; these are grown singly in large 48's with fertilised moss wrapped round their stems, all fed from saucers. Imantophyllums are easily grown, and afford a mass of grand heads of flower with a little warmth.

Going back to the overdone Chrysanthemum, the golden flowers of W. H. Lincoln in January, and later still the gorgeous E. G. Hill, should find a host of admirers. Then, what is more useful, more prolific than a house of the old Marguerite, C. frutescens? You may cut and come again, and the flowers stand for weeks in water in a cool room. Plants raised in the spring, planted out and lifted in October, form bushes naturally 4 feet through. They are carefully taken up and potted when in full flower, and afforded a few days' shade. They never cease flowering with good treatment in a little warmth. Hosts of other plants might be named, for instance old plants of Deutzia gracilis, never repotted for twelve years, are now laden with sprays of flower that are a wreath at once. Most of these simple plants are loved by both peer and peasant, and the stock on hand is always saleable.—GEORGE BOLAS.

IN answer to "Perplexed One" I take it the houses are built especially for Tomatoes, and that he wants something for about four months in the winter to grow to pay, so that the houses will be ready not later than February or March for Tomatoes again. It seems to me that permanent plants, such as Arum Lilies, Carnations, Orchids, Bouvardias, and others are out of the question, as they would be in the way of starting the Tomatoes early. If the undermentioned are well grown he would have a fair return for his outlay. Chrysanthemums are not overdone if grown in the right season, that is, December and

January, when good blooms are wanted, and by growing late sorts can be had. If good they will fetch from 9s. to 12s. per dozen bunches of twelve blooms. The following are some good late sorts: L. Canning, Princess Blanche, Princess Teck (white), J. Dibbin (bronze), W. H. Lincoln (yellow), and Yellow Gem; then a couple of houses of Lilium Harrisii. If the bulbs are bought at the right market double and single Narcissi and Daffodils, in bloom in January and February, will pay a fair return, as also will Tuberoses, and last but not least, a few houses of Mushrooms. By growing the above the houses would be cleared for Tomatoes in February and March.—GEO. MASTERS.

I AM much interested in the question propounded by "Perplexed One" (page 137). During the last seven years I have been trying to work this out, and have met with more or less success. It may be stated at the outset that market gardening, even when a man is backed up by sufficient capital, is not the profitable business it was twenty or more years ago. The profits now are under the best management small, but still an industrious, careful man can live and extend his business. There are warm islands where Tomatoes can be grown equal to those produced under glass in this country, and with the improvements in ship-building foreign competition may become more in evidence in the future that it has been in the past; hence to make a profit the culture must be right and economy in production must be closely studied.

The markets also must be watched. No doubt Covent Garden is the best market in the world for the best class produce, but Tomatoes and heavy produce generally, if produced far from London, can be more profitably disposed of locally than sent by rail. Tomatoes are so generally in demand all over the country that very often a better price can be realised in small towns and villages close at home than sending to London at considerable expense. We have occasionally sent Tomatoes and other produce to London just to test the markets in comparison with our own district, but we find a market as near home as possible for the bulk of our produce.

Profitable market gardening under glass is pretty much a matter of adapting means to ends or *vice versa*, always bearing in mind it is more profitable generally to grow the things we can dispose of close at home than to send to a distant market, where we cannot either control prices or even feel sure that the parties to whom the goods are consigned will deal fairly with us. Every man has to make his own position.

The crops which prove the most profitable in one district may not pay so well elsewhere, and therefore modifications have often to be made in our plans. It is hardly possible, even if it were wise, to attempt it, to lay down hard and fast rules to suit all places. The wise man tries to develop that part of his business which he finds pays the best, or, if possible, to develop something new, hence his mind is always on the stretch to imbibe new ideas, if there is the least chance of their paying their way.

With reference to the remark of Chrysanthemums being sold at 2s. 6d. per dozen bunches, the quality must have been poor, possibly they were grown outside. We had no difficulty in making from 2s. to 3s. per dozen blooms of fairly good flowers of Lady Lawrence and W. H. Lincoln last Christmas, and at such prices the blossoms pay. It is true, of course, the early blooms do not pay like the late ones, but these should only be grown in a limited number just sufficient to meet the home trade and keep customers together. The bulk of Chrysanthemums should be grown for late flowering, and then, if fairly good, they will yet pay. Where manure of the right quality can be obtained cheaply Mushrooms offer a chance, as they are always saleable, but there is often a difficulty about the manure. Some years ago I had a friend who had a business near a town where there was a cavalry barracks, and he secured a contract for the removal of the manure from the stables, and grew Mushrooms in large quantities. If I could secure the manure from a brewery, or any large firm keeping a number of well-fed horses, I should certainly grow Mushrooms.

Early Rhubarb in many country places is but poorly supplied, and if a moderate sized house, after the Tomatoes come out in October, is covered with canvas or even mats, or anything that will keep in the heat and subdue the light, and the house filled with strong roots of Rhubarb, the crop would be profitable, and it would not involve much expenditure provided the roots were grown at home.

Good Violets always sell well in country towns, as do also Daffodils at Christmas, and these are things which may be provided at home, and may either be planted in the borders or in boxes; the latter plan offers some advantages. Tree Carnations in about three or four colours would be a valuable help all winter. When grown in large quantities so that hundreds of dozens could be cut daily, London or Manchester would take the bulk of these if the flowers were fine. Arum Lilies, Niphetos Roses, and Strawberries would, in some cases, offer a good margin of profit.

Strawberries may be grown with Tomatoes well up to the spring on shelves slung from the roof. I am assuming that the houses would be heated more or less, as a cold house is not of much use even for Tomatoes. There should at least be the means of keeping out frost.

I am afraid I am encroaching too much on your space, though the subject is very far from being exhausted. In fact, taking into consideration the varying circumstances and conditions under which we severally work, the subject cannot be exhausted. The man who understands what he is doing and is resourceful in expedients, is fairly backed up with capital, and has good health, need not feel afraid to venture his capital if he selects the right spot. Those who are acquainted with the London trade will probably pick a suitable spot near London; but there

are hundreds of quiet spots in the country near a good sized town where a quiet living could be made without the exhausting wear and tear of mind and body which a London business involves.—E. H.

IN trying to "crack the nut" "Perplexed," our fellow reader, has given, I take first the *Calla æthiopica*. The Arum, in my opinion, is one of the most remunerative of plants "Perplexed One" can grow. If he has earth stages with space underneath them that can be made dark, he could also grow Mushrooms with advantage. The Callas should be planted 18 inches asunder, not too deep, late in August. Fresh retentive loam is the best medium in which to grow them, and when they have done their work for the season and are planted out of doors the remaining soil will be suitable for the following crop (Tomatoes). It will need turning over and sweetening a little for them. Callas sell well, and realise a good price if the spathes are what is desired—viz., fresh and free from blotches. I find Campbell's fumigating rolls effectual preventives of insects and safe if the directions given with them are followed properly. The syringe must not be spared until the plants are opening their blooms, but it is best to fumigate just before they open. Arums must be kept clean and be watered abundantly.

Next, in my estimation, would be Roses—Tea, Noisette, and a few Hybrid Perpetuals. The Mushroom beds beneath the stages, on which the pot Roses stand, would benefit and help them by supplying ammonia. "Perplexed One" will find this without doubt one "crack at the nut." The Roses will require pruning and repotting, or top-dressing as the case may be, in September, and started gradually into growth, syringing freely. Roses do not like too dry or too wet an atmosphere, hence light and air are of the utmost importance to profitable Rose growing. Then, again, Strawberries may be utilised.

One house at least should be devoted to Chrysanthemums, and I do not myself see why Chrysanthemum houses, followed by bulbs, *Spiræa japonica*, *Dielytra spectabilis*, and other good plants, not excluding Lily of the Valley, should not pay. Adiantums potted in early autumn would prove very useful now. Tuberoses require strong heat to bring them to perfection; and if these were grown it would be necessary to have a house especially for them, and therefore would not pay so well as the aforesaid. I should not advise "Perplexed One" to venture on Orchid growing with a view to profit, unless he is an expert or employs one.—JOHN MCPHERSON, *Duffield*.

"WHAT to use Tomato houses for in the winter with a view to profit?" Such is the query on page 137, February 11th, 1895. My experience is that Tomato houses may prove more profitable during the winter months than when used solely for Tomatoes in the summer, as when there is a glut of fruit prices run very low. In several provincial towns last summer really good Tomatoes were sold at 4d. per pound, from this price to 6d. per pound was the wholesale price for the best quality of English grown fruit. These prices ranged for from six to eight weeks; earlier and later the best Tomatoes were worth more money. Mine averaged a trifle over 6d. per pound. Out of this had to be paid railway charges, market tolls, and salesman's commission. It may be said there is not much profit at that price, but when one grower sends hundreds of tons of fruit to market in a season (and there are some who do so), it is the quantity that pays.

But what to grow in the winter? Although the paragraph quoted from a contemporary is before my eyes, in which Chrysanthemums are stated to be selling at 2s. 6d. the dozen bunches—twelve blooms in a bunch—I should still advise a considerable number to be grown, as on referring to my books at the time of year mentioned (end of December), I was making 36s. for the same number of blooms. This was the price made in Covent Garden Market by a well-known salesman. These were cut from plants especially grown for the purpose. Our aim should be—whether in cultivating fruit or flowers for market or home consumption—to endeavour to grow each and all to as great perfection as it is possible. Some people appear to think anything will do for the market, but after a trial they will find out to their cost that it is only the best, whether in fruit or flowers, that will make top prices. I know of nothing that will illustrate my meaning better than marketing Peaches. During the London season a large well-coloured Peach will make 2s. 6d., whereas one half the size from the same tree will only make a few coppers. But Chrysanthemums can be grown to pay even at 2s. 6d. a dozen bunches where land is plentiful and cheap. Plant out the Chrysanthemums in rows 3 feet apart. This should be done as soon as all danger of frost is past in the spring. Stop the plants two or three times during the season. They will make rapid growth, and will need no further attention, only in keeping the weeds down. Early in October the plants should be lifted and placed on the floor of the Tomato house, making the soil as firm as possible about the roots, settling all in with a good soaking of water. If the operation is carefully carried out the plants will not suffer in the least, and the grower will be rewarded with a great crop of flowers, many more than can be grown under any other system. Consequently, if the returns are small for each consignment, they will still pay in the aggregate if the bulk is large. But for quality and high prices select a couple of good late varieties, white for preference. Grow them in pots throughout the summer, and disbud from fifteen to eighteen blooms each. Cut the flowers with long stems, and they will make the highest market price.

"Arum Lilies" (*Richardias*) should be extensively grown, and if planted out during the summer months be lifted early in September before they have made much growth, and stood out of doors for a month, finally being placed in a cool house, then allowed to come on slowly,

they will flower freely at Christmas, when their spathes are much in demand and prices high. Another plan of growing Arums which I consider preferable to the above, instead of planting them out in the spring, is to gradually dry them off in the open. Should the weather be showery lay the pots on their sides; the foliage will then die down. As soon as they commence growing, which they usually do in July, they are shaken out and potted in good soil; they then grow freely and experience no check, as they sometimes do when planted out and left too long before being lifted.

Lily of the Valley may also be extensively grown in Tomato houses provided they are heated. These are always saleable, and command a good price if well grown with abundance of their own foliage. Bulbs, such as Tulips, Narcissus, and white Hyacinths, can be profitably grown. Many other things will occur to the close observer; and last, but not least, if there is an ample supply of manure to hand Mushrooms would be as much at home in the Tomato house as in the most elaborately built Mushroom house. As I have endeavoured to crack the nut your correspondent has so ably brought forward I am inclined to give him one in return, to show that by leaving the beaten track an extra profit may sometimes be obtained when least expected.

A frame of eleven sashes in which Tomatoes had been grown for several seasons past was planted the last week in May with something else as an experiment. The crop was cleared out early in September; its value was £20. One of your staff saw the crop, and thought he had never seen such a show in a frame before. Had the frame been planted with Tomatoes the outside value would not have been more than £5. A few years ago I tried an experiment, with the result that during the past few weeks I have realised upwards of £22 from what would otherwise have been a bare wall at the back of one of the houses.—ONE OF THE CRAFT.

[Our correspondent does not disclose his £20 nuts. Is he reserving them for the medal? The conditions are now ready, and will be posted during the week to persons who have applied for them, and they will be posted to others who may apply within a fortnight of the date of our present issue. The subject to be treated is "The Profitable Employment of Glass Structures in Winter." If two essays, in which different subjects are treated by different persons, are considered equally meritorious a medal will be granted for each of the essays.]



JAPANESE CHRYSANTHEMUM AUDIT.

ALL Chrysanthemum fanciers should feel indebted both to Mr Molyneux and the Journal for making an effort to place before the public a list of the very best varieties up to date. This year's audit possesses the same weak point as the one of 1894—viz., that many voters included varieties of which they have had no experience, and perhaps only known by repute, according as the variety had been "boomed." Compared with 1894 the late audit for thirty-six shows but little change. Louise, Duke of York, Primrose League, Niveus, and V. Hambleton have had a considerable rise, whilst Lord Brooke, J. Shrimpton, and Excelsior have fallen. It would be safe to predict that another season will find these much lower, together with Avalanche, Waban, G. W. Cailds, Mrs. E. W. Clarke, Viscountess Hambleton, and Primrose League will be thought less of from this date; whilst Mons. A. Giourd, Richard Dean, Duchess of Wellington, Wilfred Marshall, Madame Ad. Chatin, Cecil Wray, Mrs. Dr. Ward will have risen much in public opinion.

Now a word to show the weak point of the audit. Both in the "thirty-six" and "twelve" classes we find varieties which have never been grown in England—e.g., Duchess of York, Philadelphia, and Directeur Tisserand. Again, some are untried seedlings, one standing the highest being Mrs. C. E. Shea, truly a monster; but the only bloom yet grown is the one produced by the seedling plant. I have no wish to disparage these varieties, but without some trial no one is justified in recommending them as "the best." Duchess of York is a variety no good grower can afford to miss, for as shown on October 12th it was grand; but to prove my case I have only to mention Beauty of Exmouth. The stand of nine blooms exhibited at the October, 1892, meeting of the N.C.S., caused a sensation, and it is beyond doubt no other novelty with me ever "took on" so well, but after two years' trial what is the result? Why from some unaccountable cause this variety does not seem to do well.

Many are of the opinion that the audits should be for thirty-six varieties, old and new, and for twelve novelties, all of which the voter has grown, and to this I would add a class for twelve, which the voter had seen and not grown, but exclude all he had heard about only. Two varieties mentioned in the audit are J. Agate and C. H. Curtis, both of which have been certificated by the N.C.S. as incurved. The first named undoubtedly is a fine addition to the class, but C. H. Curtis, in my opinion, will require another season to learn as to which class it should be relegated.

The difference in the number of votes for thirty-six and twelve is most peculiar, many voters seeming to have a vague idea as to which

are novelties, and otherwise. For the twelve new varieties over 150 are mentioned, and out of this number Louise stands No. 9 with fourteen votes, and No. 16 with fifteen votes in the thirty-six class. Duke of York is placed 47 with three votes only in the "twelves," and No. 17 with fifty-one votes in the "thirty-sixes," whilst Chas. Davis is not mentioned among the twelve new ones, but is voted for by every one of the sixty-nine electors as one of the best thirty-six. Now, as to novelty. The latter has the prior claim of the three I quote. Louise was sent out by Calvat in 1892, and catalogued by the English trade in 1893, whilst Chas. Davis was not sent out until May, 1893, and both were certificated at the same meeting of the N.C.S. in that year. Duke of York was also sent out the same year, and with C. Davis and Louise were mentioned in the audit of last year. By the way, it is worthy of remark that Duke of York has not yet been certificated by the N.C.S., and in spite of this fact it obtains fifty-one votes out of a possible sixty-nine, and, according to the Year Book of the N.C.S., was found in twenty-two stands of the last November exhibition of that Society. I annex a table showing the peculiarity of the voting on some varieties.

	No. of Votes. "36."	No. of Votes. 12 new.	Year Sent Out.
Chas. Davis	69	0	1893
Louise	52	14	1892
Duke of York... ..	51	3	1893
Niveus	47	20	1893
Miss Maggie Blenkiron	11	23	1894
Cecil Wray	1	2	1894
H. L. Sunderbruck	13	14	1893
Mons. Panckouche	30	10	1893
Wilfred Marshall	15	8	1894
Duchess of Welling'on	6	14	1894
Commandant Blusset	24	10	1893
Colonel Chas... ..	15	6	1894
Violetta	4	10	1894
Hairy Wonder	1	13	1894
Rose Wynne	22	13	1894
Mrs. W. J. Godfrey	0	11	1895
Duchess of York	14	30	1895
Mrs. C. G. Hill	6	5	1894
Mrs. W. H. Lees	16	23	1894
Souvenir de Petit Ami	11	8	1892
Madame Carnot	13	21	1894

It is curious to note that whilst Madame Carnot only receives thirteen votes in the "thirty-sixes" it has twenty-one as one of the best twelve new, whilst Wilfred Marshall has fifteen in the "thirty-sixes," and only eight in the "twelves." Surely if it has fifteen in the thirty-six it should have more as a novelty, being sent out during 1894?—W. J. GODFREY, *Exmouth*.

THE "CHRYSANTHEMUM YEAR BOOK."

I AM of "Fairplay's" opinion that the illustrations in the N.C.S. Year Book are too exclusive. There were plenty of illustrations to select from without using the whole of one firm's blocks. If the selected new varieties in the Year Book are to be our guide in the future, what price first-class certificates? I notice many varieties are left out in the cold and not considered worthy of mention by the writer of selected novelties.—NOT FAIRPLAY.

MR. C. H. PAYNE (page 168) seems displeased that I did not criticise this publication generally. Time would not allow of it. Some of the chapters are good, some fair, others indifferent, but that on "Japanese Novelties of 1895" is, in my view, distinctly misleading. It is quite probable that within a few years the book in question will be referred to as an authority, and it must cause many to believe that the varieties mentioned were novelties of 1895, whereas some of them were introduced and certificated in 1893. Mr. Harman Payne says, "What a novelty is depends on individual opinion." Surely he does not wish the world to believe that, in the opinion of Mr. H. J. Jones, varieties sent out in 1893 are novelties of 1895? Mr. Harman Payne also says that I have analysed the list unfairly, and in attempting to prove this charge against me gives a list of the various raisers. These have little to do with the question I have brought forward. When a raiser has sold a variety to a distributor the pecuniary interest belongs to the latter, and out of twenty-seven varieties sent out by English firms sixteen were in the interest of the writer of the chapter, whilst the remaining eleven varieties were distributed by five others. As to the illustrations, the same remark applies. The writer of the chapter is mainly interested in the sale of them, and to illustrate the varieties of one firm only is unfair to those trade growers who have done so much in raising and distributing many sterling varieties as we now possess.—FAIRPLAY.

NATIONAL CHRYSANTHEMUM SOCIETY.

THE annual general meeting of the above Society was held at Anderton's Hotel, Fleet Street, E. C., on Monday evening, February 25th, a goodly number of members being in attendance. Mr. Chas. E. Shea was unanimously elected to the chair, and called upon the Secretary, Mr. R. Dean, to read the annual report of 1895, which, together with the balance-sheet of the Society, are appended below:—

ANNUAL REPORT.

"It is with the liveliest satisfaction the Committee are able to heartily congratulate the members upon another year of growing prosperity.

This is shown by the fact that eleven Fellows and 130 ordinary members have been elected, and the unusually large number of nineteen societies received into affiliation. This assuring growth in numbers is emphatic testimony to the widening influence exerted by the Society at home and abroad; and also to the high estimation in which the Chrysanthemum is held as an exhibition flower.

"The various shows fully maintained their reputation as the best in London. The display of early Chrysanthemums in September was small, owing to the somewhat unfavourable character of the season; but the fine collections of Dahlias and Gladioli amply compensated for any disappointment on this account. In October there was an imposing exhibition, equalling in quality the Chrysanthemums seen in November. The Great Autumn Fête in November is unquestionably the largest show of the 'Golden Flower' held in the United Kingdom, and a much more extended space for staging was required than in the previous year. On this occasion there were five competitors among the Societies in affiliation for the possession of the valuable challenge trophy, which was won by the Bromley Chrysanthemum Society. The large number of illustrations showing the decorative value of the Chrysanthemum so prominent at the November Fête were so attractive in design and execution that they called forth the loftiest praise from the general and horticultural Press.

"The exhibition held in the early part of December surpassed all expectations; the display of Japanese varieties in particular was very fine. The Committee are under great obligation to the trade for the valuable miscellaneous collections contributed to all the shows, combining as they do so much variety and interest.

"The meetings of the Floral Committee brought together a considerable number of new varieties, and that body is to be congratulated upon the caution exercised in making awards to novelties, selecting only those of the highest excellence. A desire has been expressed that the meetings of this body be held oftener during the months of October and November, a matter which will be considered by the General Committee.

"The preparation and issuing of a new supplemental catalogue is one of the agreeable incidents of the past year, bringing that important feature of the Society's work up to date. It is satisfactory to know it is in brisk demand. A 'Chrysanthemum Year Book' is a new and welcome addition to the Society's literary work, and promises to be a

financial success. In each case the editorial direction was confided to Mr. C. Harman Payne, who deserves well of the Society for his able oversight.

"Mr. E. C. Jukes having found it obligatory upon him at the end of last year to retire from the office of Vice-Chairman of the Committee he had held for several years, the members placed on record their great sense of the services he had rendered to the Society, and a suitable illuminated address on vellum, signed by the officers of the Society, was presented to Mr. Jukes by the President, at a special general meeting held in May last.

"The Committee have arranged for the holding of three exhibitions at the Royal Aquarium during the months of October, November, and December; and a Dahlia show will be held by the Royal Aquarium Society in September, as heretofore, at which prizes will be offered by this Society for early Chrysanthemums, and these will be supplemented by a grant of £10 for Dahlias. Some substantial additions have been made to the prize money in the specimen plant classes at the November show.

"Certain amendments to the rules recommended by the General Committee have been drafted for acceptance by the General Meeting. They give greater scope to the operations of the Society and augment the privileges of members.

"The President of the Society (Sir E. Saunders) continues his warm interest in its welfare and work, manifesting it in several gratifying ways, and particularly by his generous gift of a piece of plate as the President's prize at the November exhibition.

"It is with the greatest regret the Committee have learned the resolve of Mr. Robert Ballantine to retire from the position of Chairman of the General Committee. Appointed Vice-President in 1879, he ten years later became Chairman on the retirement of the late Mr. E. Sanderson—a post he has filled with great credit to himself and advantage to the Society, whose best interests he has always promoted to the utmost. Pressure of business engagements, with other considerations, actuates him in taking a course the Committee so much deplore. There is, however, reason to hope Mr. Ballantine's exertions in promoting the best interests of the Society may be continued as a member of the General Committee.

"To all donors of special prizes the Committee tender their grateful thanks, assuring them such welcome assistance is highly appreciated."

FINANCIAL STATEMENT, 1894.

RECEIPTS.

Dr.	£	s.	d.	£	s.	d.
Balance in hand	16	15	8			
Members' Annual Subscriptions—						
534 @ 5s.	133	10	0			
16 @ 10s.	8	0	0			
16 @ 10s. 6d.	8	8	0			
73 @ 21s.	76	13	0			
1 @ 30s.	1	10	0			
5 @ 42s.	10	10	0			
1 @ 63s.	3	3	0			
				241	14	0
Foreign Members' Subscriptions				4	7	9
Donations and Special Prizes				41	15	6
Royal Aquarium Company—						
Bill Posting, September Show	1	17	9			
October Show	£75	0	0			
Bill Posting	2	4	9			
				77	4	9
November Show	175	0	0			
Bill Posting	3	5	6			
	178	5	6			
Less Tickets	15	0	0			
				163	5	6
December Show	50	0	0			
Bill Posting	2	8	6			
				52	8	6
				294	16	6
Affiliated Societies—						
Fees	52	10	0			
Medals and Certificates	90	13	0			
				143	3	0
Entrance Fees, and Rent of Space	34	17	6			
Catalogues and Postages	9	12	0			
Sale of Tickets	24	7	0			
Advertisements in Schedule	27	12	0			
Reserve Fund, received during 1894	2	18	6			
Spiers & Pond, overpaid returned	0	10	0			
G. Dawson, overpaid returned	3	2	6			
Reserve Fund Account, wrongly debited	1	8	6			
				£847	0	5

Reserve Fund invested in "N.C.S. Annual" £55 2 0

EXPENDITURE.

Cr.	£	s.	d.	£	s.	d.
Prizes—September Show	13	15	0			
October "	37	10	0			
November "	263	16	6			
December "	44	5	0			
Medals Awarded and Engraving	66	16	7			
				426	3	1
Medals and Engraving, Affiliated Societies				53	13	5
Cartage				6	19	10
Judges' Fees				16	16	0
Judges, Floral Committee and Staff Luncheons				23	4	7
Bill Posting, as per contra				9	16	6
Advertising in Horticultural Press				12	9	0
Hire of Rooms				8	8	0
Hire of Plants				4	0	0
Expenses of Annual Dinner				17	0	0
Printing				65	18	6
Stamps, Telegrams, &c.				36	2	4
Sundry Expenses, including Labour and Assistance at Shows				36	13	11
Stationery				20	8	11
Clerical Assistance				1	0	0
Bank Charges				1	9	2
Commission				1	13	6
Donation to Royal Aquarium Employees				2	2	0
Harding—Supports for Show Cards				6	8	0
Bottles				1	19	6
Boxes for Medals				1	19	0
Hire of Show Case				4	4	0
Reporters' Fees				4	1	0
Balance at Bank				29	10	2
				£847	0	5

Compared with the vouchers and found correct.

(Signed) HENRY WILLIAMS, } Auditors.
THOMAS C. WARD.

February 21st, 1895. RICHARD DEAN, Hon. Secretary.

The Chairman, on moving the adoption of the report, said there was little need for him to comment upon it, as the balance-sheet was very satisfactory, which in these days of depression was an important matter. Chrysanthemum growers had supported the Society, and he was glad to say it was making substantial, healthy, and real progress, and they might congratulate each other on its great success. Mr. D. B. Crane seconded the proposition, which was carried unanimously.

A vote of thanks to the Auditors, Mr. H. Williams and Mr. T. C. Ward, was proposed by Mr. Berridge and carried. The Chairman then

proposed Sir Edwin Saunders as President of the Society for the ensuing year, thanking him for his liberality and kindness in the past, and adding that the Society were fortunate to obtain the benefits of his services. This was seconded by Mr. Briscoe-Ironside, and carried amidst applause.

Mr. G. Langdon moved that Mr. W. R. Starling should again be elected Treasurer. This was seconded by Mr. Davy, and carried. Mr. T. W. Sander then proposed Mr. B. Wynne as Chairman of the Committee in place of Mr. R. Ballantine, who declined re-election. This

was seconded by Mr. Bevan, and carried. A hearty vote of thanks was proposed by Mr. Geo. Gordon to Mr. R. Ballantine for his past services to the Society, and said that this meeting of members places on record its high sense of the great services rendered to the National Chrysanthemum Society by Mr. Robert Ballantine since the year 1879, first as Vice-President of the Society up to 1889, and subsequently as Chairman of the General Committee. That it has learned with sincere regret that circumstances necessitate Mr. Ballantine's retirement from this important post, and takes this opportunity of tendering him a most hearty and enthusiastic vote of thanks. That it has been referred to the General Committee to take such steps as may appear desirable to mark in some appropriate manner the high esteem in which Mr. Ballantine is held by the members. Mr. H. Cannell, in seconding the proposition, spoke highly of Mr. Ballantine's services in a few appropriate words.

There were several proposals for the office of Vice-Chairman, which, however, after some little discussion, were reduced to one, Mr. T. W. Sander, who was duly elected. Mr. C. Harman Payne was re-elected as Foreign Secretary, and Mr. G. C. Ingram was elected Auditor with Mr. T. C. Ward in place of Mr. H. Williams, who retires. The proposition for the re-election of the Secretary, Mr. R. Dean, was moved by Captain Hicks and carried unanimously. Mr. T. Bevan proposed that the Secretary's remuneration should be raised to £75 per annum, a motion which was referred to the General Committee.

Some discussion followed as to the alteration of certain rules as recommended by the General Committee, resulting in the adoption of the following:—

Delete rules IV. and V., and substitute the following:—

RULE IV.—*Fellows and Honorary Fellows.*—"All persons subscribing 1 guinea and upwards per annum shall be designated Fellows of the Society. Honorary Fellows shall consist of those who by reason of conspicuous service rendered to the Chrysanthemum have earned a title to some special recognition by the Society. Honorary Fellows shall participate in all the advantages of membership without payment of any subscription."

RULE V.—*Members.*—"The annual subscription of a member shall not be less than 5s. Subscriptions are due on the first day of March in each year. Foreign members shall be admitted to all the privileges of the Society on such terms as the General Committee may from time to time determine."

RULE VI.—*Election of Fellows and Members.*—"Every candidate for admission as a Fellow or member of the Society must be proposed by a member, and elected by a show of hands at a meeting of the General Committee, held in accordance with the rules, or at the annual general meeting or any general meeting of the Society, and no candidate who may be rejected shall be eligible for re-nomination. The election of Honorary Fellows shall take place at the annual general meeting, and nominations for Honorary Fellowships must first be recommended by the General Committee."

RULE VII.—*Privileges.*—"All Fellows and members shall be entitled to vote at the general meetings of the Society. Fellows shall be entitled to four passes; members subscribing half a guinea to two passes; and those subscribing 5s. to one pass, to all the Society's exhibitions and meetings of the Floral Committee. Members desiring to withdraw from the Society must give notice on or before March 1st, otherwise the subscription for the current year must be paid. The Committee shall have power to remove from the roll of membership the name of any person whose subscription for the past year shall not have been paid by the 1st of March following."

RULE VIII.—*Affiliated Societies.*—At the end of the rule add the following:—

"NOTE.—No medal or medals of the National Chrysanthemum Society offered for competition at any exhibition of an affiliated society can be supplied to any person or persons other than the secretary of that society. No medal or medals after being ordered by an affiliated society and duly supplied can be returned."

RULE IX.—Line 3, after "General Committee," add "*and.*"

Line 4, after "shall be elected," add "*by ballot*" as set forth in Rule 3.

The following were duly elected by ballot as the Committee for the ensuing year out of seventeen proposed:—Mr. G. S. Addison, Rosebank, Thornton Heath, 41 votes; Mr. T. Bevan, St. Marylebone Cemetery, East Finchley, 49; Mr. H. Cannell, Swanley, Kent, 25; Mr. W. Herbert Fowler, Taunton, 23; Mr. J. P. Kendall, Templeton Gardens, Roehampton, 31; Mr. G. Langdon, 45, Walsingham Road, Clapton, 52; Mr. E. Rowbottom, Priory Road, Hornsey, N., 38; Mr. A. Taylor, 5, Vernon Terrace, East Finchley, 49; Mr. T. L. Turk, Highgate, N., 32; Mr. W. Daniels, 33; Mr. C. F. Yeoman, 32; Mr. F. Gilks, 30; Mr. J. T. Simpson, 34; Mr. W. Higgs, 30.

Mr. R. Dean then proposed a vote of thanks to Mr. C. E. Shea for the able manner in which he had occupied the chair, this was seconded by Mr. Briscoe-Ironside, and carried amidst great applause.

Mr. C. E. Shea replied in a few appropriate words, and the meeting was then brought to a close.

THE HISTORY AND CULTIVATION OF THE TOMATO.

AT a recent meeting of the Birmingham Gardeners' Mutual Improvement Association, held at the Athletic Institute, Mr. J. B. Latham in the chair, a paper was read by Mr. A. Coombes, gardener to the Dowager

Countess of Dudley, Himley Hall, on the above subject. The essayist dealt with his subject in a most interesting and practical manner.

In adverting to the history of the Tomato, Mr. Coombes—remarking that it was introduced into this country in 1596 under the scientific cognomen of *Solanum Lycopersicum*, and quoting from "Macdonald's Gardeners' Dictionary," published in 1807—observed that it was described as an annual plant with an herbaceous, branching, hairy stalk, rising to a height of 6 to 8 feet if supported, otherwise the branches will fall to the ground; and that Miller has found two sorts only, the first as being commonly cultivated in the South of Europe, to put into sauces and soups, to which it imparts an agreeable acid flavour, and fruit very large, compressed both top and bottom, deeply furrowed all over the sides, of a red or yellow colour; the latter sort round, about the size of a small Cherry, either red or yellow, flowering from July to September; but not a word as to cultivation, which omission leads one to believe that the fruit at that time was not in request in this country.

Miller described five species under the generic name of *Lycopersicum*. Curiously, however, neither author gives the date (1596) of the Tomato's introduction into this country. Miller, however, gives a short description of its culture, recommending the seeds to be sown on a hotbed in March, transplant when fit to handle on another moderate hotbed, pot up in May or into the borders of the flower garden; the plants will grow to a prodigious size and produce large quantities of fruit, which in autumn, when they are ripe, will make an odd figure; but the plants emit so strong an effluvia as renders them unfit to stand near a habitation or any place that is much frequented, for being brushed by the clothes they send forth a very strong disagreeable scent. He goes on further to say that the Italians and Spaniards eat these Apples as we do Cucumbers, with pepper, oil, and salt, and some eat them stewed in sauces, &c.; but considering their great moisture and coldness, the nourishment they afford must be bad. He also says that the yellow-fruited variety—presumably *Chrysocarpum*—as the Love Apple, directed for medicinal use by the colleges in Italian dispensatory. Altogether, we have a rather remarkable contrast with the present-time estimation of the fruit. In 1827 a writer in the "Gardeners' Magazine" remarks at considerable length of the culture, including *Leucocarpum*, or the white-fruited variety, and used in this country, also in Naples, Rome, and France.

After giving a lengthened and exhaustive treatment of the culture of the Tomato, and including a long list of the best known sorts, selecting himself, if confined to a small number of varieties, Challenger, Webb's Regina, Ham Green, and Frogmore Selected. Polegate he considered to be one of the very best.

In concluding the reading of a well-thought-out and instructive paper, he suggested that in addition to the usual mode of exhibiting Tomatoes—i.e., fruits singly—prizes should be offered for the fruit as grown in the hunch form, the better to test the special merits of the varieties and the practical ability of the grower—a hint which was unanimously acquiesced in by those present. Responding to the vote of thanks accorded him, Mr. Coombes confessed that this was the first time that he had ever written a paper on horticultural matters, or had the pleasure of addressing an audience.

GLOXINIA CULTURE.

ALTHOUGH these beautiful plants are more generally regarded as summer flowering, they may by a little judicious management be had in flower nine or ten months out of the twelve. I will endeavour to point out how this end may be obtained.

Tubers that were properly dried or ripened in the autumn, and which have since been kept in a temperature of from 45° to 55°, will now begin to show signs of activity. The earliest should be placed in a temperature of 65° to 70° in a position near the glass, and must not be disturbed at the roots under any consideration, but gradually supplied with water of the same temperature as the house. Great care must at all times be exercised not to keep them too wet, or to allow any water to lodge on the foliage, as they are very impatient of any neglect in this respect. Providing all due care and attention is bestowed on them they will quickly commence to throw up their flowers, and as soon as this stage is reached liquid manure may be applied twice a week with beneficial effect. My plants, which were started during the last week of the old year, are now just showing for bloom.

In the potting of Gloxinias there arises a case of "where doctors differ, who shall decide?" Some growers recommending shaking all the old soil away from the tubers, whilst others say, Do not remove any but simply give them a size larger pot; but my own experience pertaining to the subject is as follows:—Give the tubers a good watering the day previous to that in which they are to be potted, well soaking the ball of soil all the way through. The next morning the superfluous water will all be drained away, and potting may be proceeded with. Turn the tubers out of the pots, remove about half of the soil, and place them in the same sized pots. Any that were not well soaked should be immersed in water, for to pot them in a dry state is only to court failure. As the pots become full of roots the plants may be shifted once or twice till they reach 7 or 8-inch pots, which are sufficiently large for general decorative purposes. A light rich soil should be given, making it moderately firm.

After the earliest plants have done flowering they should be gradually dried, placed in a cold frame, and allowed to rest for two or three months, when they may be placed in heat and treated in the way recommended. By this means a continuation of bloom may be obtained from the middle of February till well into December. Seeds if sown at

once, and the young plants flowered in small pots, will, if rested for two or three months, also supply flowers during the autumn, but the result to my mind is not so satisfactory as that attained when one or two-year-old tubers are employed.—GEO. PARRANT, *Ashby Lodge, Rugby*.

RHODODENDRON TRIFLORUM.

A CORRESPONDENT desires information about this *Rhododendron*, and probably the note appended with the illustration (fig. 36) will be of assistance to him.

This is a rare and very curious species, discovered by Sir J. D. Hooker in Sikkim, Himalaya. The colour is yellow, and the florets are not unlike those of *Azalea pontica*. The habit of the plant, however, is evergreen, and the backs of the leaves are profusely sprinkled with scales, bringing it more into affinity with *R. ciliatum*, *glawcum*, and *cinnabarinum*. It seldom flowers as a small plant, which is a drawback; but, on the other hand, it is perfectly hardy, blooming too late in the season to be affected by the spring frosts.

WORN-OUT ORCHARD TREES.

THIS was the subject of a paper read before the members of the Brighton and Sussex Horticultural Society at their monthly meeting on Thursday, February 21st, by Mr. A. M. Kemp, gardener to C. S. S. Dickens, Esq., Coolhurst.

Mr. Kemp in the first place described the state of an old orchard which came under his charge about seven years ago. The trees had been pruned to keep them from spreading outward, but the centres were full of dead and dying wood, the branches moss-grown. They bore but little fruit, and that little was so small as to be practically worthless. To remedy this miserable state of affairs the dead wood and cross branches were taken out, leaving the centres open and the main branches evenly disposed. The trees were then cleaned and washed with a mixture of lime and soot. To restore fertility a very cheap and effectual remedy was found in the rubbish heap. A little lime is added to this, and the whole turned over occasionally. Since starting operations this mixture has been liberally used as a top-dressing in the autumn or winter, and in addition sewage water has been applied.

The result of this treatment has proved most satisfactory. The trees have made clean, well-ripened wood, and now bear good crops of clean, fully developed fruit. In proof of this Mr. Kemp showed dishes of fruit of the leading sorts in splendid condition, pointing out that he had brought duplicate dishes to show the superiority of the fruits gathered from the young wood over those from the old spurs.

Some discussion followed, and in reply to a question as to how the fruit had been kept in such fine condition, Mr. Kemp stated that they had been kept on the floor of an old summer house in heaps as they were gathered from the trees, there being no boards, straw, or anything of a nature to absorb the moisture from them. The room is ventilated, and a fire is lit in an ordinary fireplace when there is danger of frost getting in. A hearty vote of thanks was given to Mr. Kemp for his paper. The Chairman, Mr. Balchin, in putting it to the meeting, remarked that Mr. Kemp's success might lead others to consider whether they will not be doing better by trying similar treatment of exhausted Apple trees.—R. I.

CULTURE OF DAPHNE INDICA.

FEW of our intermediate or greenhouse flowering plants possess a more agreeable perfume, or call for greater admiration, than healthy well grown plants of *Daphne indica rubra* or *alba*. A common error into which many people fall is in thinking that the only way to succeed with the *Daphne* is to grow grafted plants, the stock used mostly being *Daphne Laureola*, whereas fine bushes may be produced from cuttings, although I admit that larger plants may sooner be obtained by grafting.

In many places old plants will have gone out of flower, and if placed in a genial temperature will be pushing out new shoots in abundance. These when about $2\frac{1}{2}$ or $3\frac{1}{2}$ inches long and fairly matured should be taken with a heel, inserting four cuttings in a $3\frac{1}{2}$ -inch pot, using a light compost with a surfacing of silver sand. Carefully water them through a fine rose, and remove to a cool greenhouse. In about six weeks with careful attention they may be introduced into heat—a little bottom heat if possible—when they will soon begin to emit roots. When ready for potting carefully crock some small pots, as nothing suffers sooner from being waterlogged, using peat and leaf mould in equal proportions as the compost. Place in a house with a fair amount of heat and moisture, pinching out the points when fairly on the move, as this will induce them to break, and lay the foundation for a good plant.

If strict attention has been paid to the young plants they will probably be ready for a second shift about the end of July or early in August, using pots 1 or 2 inches larger, the compost being three parts good fibrous peat, with a little fibrous loam and leaf mould, and a liberal part of coarse silver sand. In the autumn a cooler temperature will suit them. In February they may be introduced into more heat, when they will readily break into growth. The secret in securing fine sturdy plants is to give the heat in the spring and the early summer. By so doing the growths are strong and the buds soon set. The plants enjoy a season of rest during the waning months of the year, and readily respond to the

warmth, and can then be brought forward as required. We have one large specimen some 5 feet 6 inches high and 4 feet through, which stands in the conservatory during the *Chrysanthemum* season. It is in splendid condition, although it has not been potted for fourteen years, a top-dressing each season is all it seems to require. For two weeks in August and all September it is placed in the open air.

The only insect injurious to the *Daphne* is the mealy bug. If not removed this pest will find its way into the trusses of flower, rendering them almost worthless. Syringing a few times with one of the many insecticides in the spring will in nearly every case do away with it.—R. P. R.

FORTY DEGREES BELOW ZERO.

THE extraordinary severity of our recent winter may incline many to ask, "If it is like this at 15° or 20° of frost, what must it be 40° or 50° , or even 70° below zero? What must it be in the Arctic regions?" And as regards the Arctic regions, at any rate, the question is not an idle one. The object of Arctic exploration is mainly scientific; its records



FIG. 36.—RHODODENDRON TRIFLORUM.

are written in a scientific spirit and in scientific terms; and such natural illustrations of the action of Arctic cold as do occur are so easily lost sight of amidst the mass of purely scientific data as to be of little value to the general reader. Yet without some knowledge of their practical bearing the figures, "40 below" or "70 below" convey to the mind next to nothing.

Now, I was never in the Arctic regions, so can say nothing about the practical aspect of Arctic cold at its worst. The $70\frac{1}{2}^{\circ}$ below zero recorded by the "Discovery" in 1875, which stood at that time as "the greatest cold ever experienced by any Polar expedition," is a good deal beyond my figure. But of 40° below zero I do know something, since for six successive winters I lived where that figure is invariably reached and sometimes passed. A few homely illustrations of a North Dakota winter may prove not uninteresting, and ought to give a more vivid impression of the action of intense cold than can be gained from thermometrical records alone.

Generally speaking, winter in North Dakota sets in during the latter part of November, and winters to break up in April. The lakes and sloughs are soon fit to walk on, and the ice continues to increase in thickness as the winter progresses. Occasional warm, balmy days occur throughout the winter, but these do little to retard the steady progress of the frost. In this country we reckon the thickness of ice by inches; in North Dakota by feet. Six inches is in Great Britain of extremely rare occurrence. In North Dakota I have myself cut ice on Devil's Lake which was 6 feet thick. The ground freezes to a depth of 7 feet, and I have lifted fence-posts out of the ground late in the summer which at the end were covered with hard, frosty earth. Indeed, it is doubtful if the frost is ever fairly out of the ground.

Wells, which in the Devil's Lake region generally vary from 20 to 40 feet in depth, freeze over unless covered in on the top. During keen weather water freezes almost as quickly as it is drawn up, and the buckets after a few applications have to be taken in and thawed out. Water poured on ice during such weather makes it crack and split like lime. Metal when touched seems red-hot, and the unwary one who

places his hand on the tire of a waggon is safe to leave a frizzling shred or two of skin behind him.

The action of the cold on the human body is not less remarkable, and the man who would provide adequately against it has to carry quite a little wardrobe on his person, including, besides the other usual requirements of dress, two pairs of trousers, two pairs of mitts, heavy felt wool-packs coming up to the knee, and lined cloth shoes over these again; fur cap drawing over the ears, and heavy overcoat of buffalo or other warm fur. A silk handkerchief tied across the mouth and nose is an admirable protection for these members.

A neglect of any of the above precautions is apt to entail the penalty of frozen feet, fingers, ears, or nose, as the case may be. Frost-bite announces itself by a momentary stinging sensation like that of a fine red-hot needle. If the warning is unnoticed the affected part becomes white; the pain has gone, and you may proceed without knowing that anything is wrong until happily someone comes the other way and spies the danger signal. Nature's remedy is always close at hand—a handful of snow—and with this the injured part is vigorously rubbed. By this means the frost is drawn out, and the affected member, restored to more than its usual colour and twice its natural size, may still look forward to days of usefulness. Still better than snow for extracting frost is kerosene or coal oil. Frost-bitten feet, when placed in a pan of cold water, will send up a skim of ice to the surface. On no account should heat be applied, as its effect is to drive the frost in instead of drawing it out, and if the frost strikes into the bone the consequences are serious.

Strange as it may seem, the period of intensest cold is not that associated with the greatest loss of life. As the thermometer falls the wind falls, till at 30° or 40° below zero there is usually a dead calm; consequently during December and January there is little to fear for the most part but the odd chance of a frost-bite, and a person warmly clad can go about freely anywhere. February and March, with a rising thermometer, are the chosen months of the dreaded blizzard, when the wind rises to a tornado, and snow from sky and ground are mingled in one seething boiling mass. The blizzard attains its greatest violence further south—in South Dakota, Iowa, and Minnesota—where men have been known to lose their way between the house and the barn, and their frozen bodies have been discovered after the storm only a few hundred yards from their own dwelling. In such places it is usual on the approach of a blizzard to have a line stretched from the house to the barn, along which one may feel his way through the dense thickness of the storm. By this means stock can be attended to in any weather absolutely without risk.

The foregoing are only a few familiar illustrations of a North Dakota winter; but the record, meagre as it is, may seem strange enough when we consider that North Dakota is in pretty nearly the same latitude as the middle of France. And yet there are compensations here as elsewhere—wonderful evidence of adaptation to the most beneficent purposes. The frost stored up during the winter yields to the growing plant a supply of moisture and coolness that carry it safely through the drought of summer, when otherwise it would droop and die. The hardy farmer of the North-West is far from grumbling at the length or severity of the winters, for they have helped to make it the greatest Wheat-growing centre of the world—the home of the famous “No. 1 Hard.”—A DAKOTAN (in the *Pall Mall Gazette*).



FRUIT FORCING.

Pines.—*Plants Starting into Fruit.*—The plants of Queens, Enville, and Providence, selected last December and started at the new year by an advanced temperature and increase of moisture, will now be showing fruit sturdily, providing they have a position well up to the light, with just sufficient space for developing the fruit and crown without touching the glass. As it is advisable to accelerate the ripening of the fruit of these plants as much as possible the temperature may be maintained at 65° to 70° at night and 75° to 80° in the daytime under favourable circumstances, ventilating at 80°, allowing an advance to 85° and closing at about that temperature, utilising the sun heat as much as possible, but not by keeping the house very close and moist in the early part of the day. The plants will require more water at the roots as they advance in fruit development; therefore examine the soil once a week, affording a supply to such as need it, always thoroughly moistening the compost and having the liquid tepid with some stimulant in it, as that of guano, 1 lb. to 20 gallons of water. The guano contains salts that tend to promote a sturdy development of the fruit without unduly forcing leaf formation; but where the foliage has a tendency to softness a teaspoonful of common salt may be dissolved in every 3 gallons of liquid used for watering, not using this oftener than every fortnight. The plants that were started about the middle of this month to follow those above named should have a night temperature of 65°, and 70° to 75° by day artificially, ventilating from 80° and freely at 85°.

Starting Suckers.—The starting of these will have to be commenced early in March, hence attention must be given to the preparation of the

soil for potting and a fermenting bed in some suitable structure, such as a low house or pit that can be kept close and shaded, to generate and maintain a bottom heat of 85° to 90° near the surface, and with means of maintaining a top heat of 55° to 65° by artificial means with regularity.

Vines.—*Early Forced in Pots.*—Though Vines force well in pots there is no question that the best results are obtained from planted-out Vines, not necessarily those in large structures, but such as may be grown in low three-quarters span-roofed houses facing south, and with beds only slightly deeper than those for Cucumbers, Melons, or Tomatoes. Muscats, such as Madresfield Court, succeed admirably grown in that way, also Muscat of Alexandria when there is means of furnishing bottom heat, which is a great aid in all forcing operations. Black Hamburgh and Buckland Sweetwater do better with than without the bottom heat, and on the planted-out than on the potted system. If the roots on this method cannot have the run of the fermenting bed place strips of zinc 3 or 4 inches deep round the top of the pots, inserting them just within the rim, and top-dress with rich turfy loam two parts, and one part decayed manure, on which may be sprinkled a tablespoonful to each pot of some approved fertiliser about every fortnight. Where the pots are plunged to the rims in the fermenting material, strips of turf may be laid over the rims so as to form the necessary dish, keeping the turves moist to encourage the roots to come over and spread in the fermenting bed, from which they will imbibe nutrient matter, greatly aiding the swelling of the berries. Supply liquid manure to the Vines at every watering, not keeping the soil sodden, but allowing it to become fairly dry, then afford a thorough supply. The berries swell best with a fair amount of lateral extension, especially above the fruit; therefore laterals below the bunches may be rubbed off or closely pinched as there is room, always allowing the light to act freely on the principal leaves. Careful treatment is required during the stoning process, which in the earliest started is nearly completed, ventilating at 70°, increasing it with sun heat to 85°, and close between that and 80°, if with an advance to 85° or 90°, so as to secure a long day's work, all the better. Keep a sharp look out for red spider, and sponge the first infested parts of the leaves with a weak (2 ozs. to a gallon of water) solution of softsoap, supplying guano water to the roots, and sprinkling the paths occasionally with it, but using it discreetly, a gallon at a strength of 1 oz. guano therein being sufficient for 12 square yards of surface. The paths, walls, and beds may be sprinkled two or three times a day with water, so as to maintain a genial condition of the atmosphere. In bad cases the hot-water pipes may be lightly coated with a thin cream formed of flowers of sulphur and skim milk, but there is danger of the fumes injuriously affecting the skin of the berries.

Early Forced Planted Out Vines.—Those started early in December will require the berries thinning, attention being given to this directly it can be seen which berries are properly fertilised by their taking the lead in swelling. Remove badly set and ill-shapen clusters, striving to secure a crop of compact, good shaped, well-furnished bunches, properly swelled berries, and perfect in colour and finish. Such only are satisfactory either for home use or marketing purposes. Allow laterals to extend beyond the fruit where there is room for the exposure of the foliage to light, but in no case must growth be encouraged to the prejudice of the principal leaves. Attend frequently to stopping, for the alternating checks to root action, consequent on removing large amounts of growths, nullify the accelerations of their formation, and are attended by bad consequences to both foliage and fruit. Maintain a night temperature of 60° to 65°, and 70° to 75° by day, advancing 10° to 15° from sun heat, commencing to ventilate from 70°, keeping through the day at 80° to 85° when the external conditions are favourable, closing between those temperatures, damping at the time. Afford thorough supplies of liquid manure to inside borders at such intervals as necessary for keeping the soil in a moist, healthy condition, supplying the liquid after moistening the soil with tepid water, or top-dress with chemical manure, and wash in. In the case of borders of open material or limited areas, mulch the border with about a couple of inches thickness of sweetened, short stable manure, material prepared as for Mushroom beds acting perfectly. If quite fresh there is danger of the ammonia evolved prejudicially affecting the foliage. Avoid syringing the Grapes, as however clear and soft the water may be there is danger of a sediment, which may not appear until the fruit ripens, and then it is a great blemish on an otherwise well-finished crop.

Vines Started at the New Year.—Attend to disbudding the Vines as the best shows can be determined, but it is wise to let this be plain, as any scrutiny of the points of the shoots by forcible means more or less damages the growth. It is also desirable to let the shoots grow up to the light, always attending to tying in time to prevent the points touching the glass, and in bringing down be careful not to snap the growth off at the base, or cause it to break at the point by too abrupt depression. Allow no more growth to remain than can have full exposure to the light, not only for the principal leaves, but a fair amount of lateral growth. Stopping is best attended to whilst the growths are forming, the leaf at the stopping joint being about the size of a half-penny. Allow at least two, and if possible three or four, joints beyond the bunch, stopping all laterals below the fruit at the first joint, or they may be rubbed off except from the two lowest leaves. The laterals from these should be pinched at the first leaf, and any subsequent growths from them pinch at every leaf; but those on a level with or above the bunch may be allowed to extend as space permits, always stopping early enough for securing subsequent growth and with space for its develop-

ment. When in flower afford a night temperature of 65° to 70°, with 10° to 15° rise from sun heat, closing at 80°. Vines set the fruit most satisfactorily when the atmospheric moisture is not excessive during the flowering period, but an over-dry atmosphere must be equally avoided. Artificial impregnation is desirable for the shy-setting varieties. In the case of Muscats fertilisation is a necessity, keeping the points of the bunches well up to the light, indeed, cross-fertilisation is attended with the best results both as regards setting the fruit, its swelling and perfecting.

Early Muscat Houses.—Although Muscats are frequently grown with Black Hamburgs and similar varieties they are far from satisfactory; indeed, they cannot be grown well together, as neither can have full justice. Muscats require inside borders, and early forced are better with bottom heat, for which they pay well, as Muscat of Alexandria in June bring far better prices than any other, and it is the quality Grapes that pay the grower, for the easily grown are produced in such quantities as to glut the markets. Houses that were set to work by the middle of December, after being closed a fortnight previously, have the bunches about flowering, and require a night temperature of 65° to 70°, with a rise of 10° to 15° by day, closing at 80° to 85° when bright weather prevails. When they commence flowering every bunch should be gone over with a large camel's-hair brush, for the purpose of removing the "caps," and then fertilise the same with Black Hamburg pollen, or preferably Alicante, as the cross of the thick-skinned on the thin-skinned varieties improves the cuticle of the berries, and the oval-shaped sorts better suit the conformation of Muscat of Alexandria than the round, which is apt to induce a rounded and somewhat irregular form to oval berried varieties.

Midseason Uses.—The Vines to afford ripe fruit in August and September of the Black Hamburg, Foster's Seedling, and similar type, must be started at once, and with the temperature kept at 50° by night, and 55° in the daytime from fire heat, with 65° from sun heat, they will break gradually and strongly. When movement takes place in the buds the temperature must be gradually raised, so as to bring the Vines into leaf, with 60° at night, 65° by day in cold weather, 70° to 75° with gleams of sun, and 10° to 15° advance on bright days. With starting in this way, the Vines will need little artificial heat during the months of June, July, and August, and having the benefit of the summer for growing and perfecting their fruit, better results will be attained than from starting late, and having to fire hard in late summer to perfect the crop.

Late Vines.—The thin-skinned varieties require a long time to grow and ripen fully for satisfactory keeping. Those started at the beginning of March have a chance to perfect the crop by the middle or end of September, but those not started before April usually are then only fairly commencing that process and the fire heat entailed to complete the ripening is often not only costly but ineffectual. The inside border must be brought into a thoroughly moist condition. Sprinkle the rods two or three times a day, maintaining a night temperature of 50° to 55° and 65° in the daytime, by which means the Vines will start freely, and having the whole of the summer to grow and mature their crops in, they will prove most satisfactory in produce and cost of production. Where the Vines have yet to be pruned and the house put in order, this should be attended to without delay. If the Vines are pruned and the temperature be kept low, there may not be any bleeding when started, provided the cuts are carefully dressed with Thomson's styptic or patent knotting immediately the wounds are dry after pruning. The dressing of the Vines is a needful precaution against insect and fungal pests, which to be of use necessitates the removal of the loose bark, without very close peeling and scraping into the quick. Remove the loose surface soil from the border and supply fresh turfy loam, using about half a pound of some approved fertiliser per square yard, which, distributed on the surface of the top-dressing, will get washed into the soil quite fast enough. The soil should be brought into a moderately moist state prior to the top-dressing, then sufficient moisture will arise for keeping the latter moist, and in that state it is far better as an encourager of root formation than when continual dribblings have to be given. Protect the stems of Vines in outside borders, and supply a top-dressing of sound enriching material, which will be all the protection necessary.

Late Houses of Hamburgs.—By keeping the structure cool and dry, and the border sufficiently moist to preserve the roots in sound condition, and ventilating fully at and above 50°, the Vines will start naturally when the mean temperature of the external air reaches 50°, or a little before, which usually takes place during April. The only assistance such Vines require is to maintain a temperature of 50° to 55° at night and on dull days, sun heat doing the rest of the work, for the crop sets by the early part of June, is swelled with the solar warmth, and a little fire heat in September, or after the Grapes commence colouring perfects the crops. Of course, sun heat must be husbanded during the summer months by early closing, and the Vines be well nourished; then Grape-growing is one of the simplest and most satisfactory processes in horticulture, it being far easier to grow Grapes, except the Frontignans and Muscats, true, as Black Muscat and Muscat of Alexandria, with Canon Hall, than Melons or even Peaches and Nectarines.

THE KITCHEN GARDEN.

Salading.—With such a scarcity of green vegetables everywhere anything in the shape of salading will be appreciated. Endive under glass is yet available, but unless kept very cool will soon run to seed. Sow Lettuce Paris White Cos somewhat thickly in large boxes of rich soil, and place in heat to germinate. Before the plants become much drawn transfer to a shelf near to the glass in a warm greenhouse or

frame. When the plants are about 4 inches high cut over and use the tops or leaves whole for salad. In this way a succession could be kept up till forced plants of early Cabbage varieties are available. Do not hurriedly throw away old roots of Chicory. If potted or bedded, and kept quite moist at the roots, a third or fourth crop of leaves could be obtained from them, and which, when well blanched, are suitable to use with green Lettuce. Mustard and Cress ought to be constantly forced. Make a fresh sowing once a week, and always use fresh rich soil, as it damps wholesale if the precaution of wholly changing the soil is not taken. Sow thickly on a level surface, keep in fairly brisk heat, and shade heavily till the stems are upwards of 1 inch in height; then expose, and keep in a cooler house or frame. It is only by keeping it in the shade at first that those long well-blanched stems can be obtained.

Sowing Seeds under Glass.—A mild hotbed surmounted by a frame, roughly constructed or otherwise, will always be found of good service in raising early plants for the kitchen garden. Those who have no frames to spare and none too much heating material may, after surfacing the bed with not less than 6 inches of fine light soil, sow Horn Carrots broadcast all over the bed. If a partial failure with anything takes place, it will be most probably due to sowing too thickly. An early start should be made to obtain Brussels Sprouts well established in the open. All that are needed for most gardens can usually be raised on a bed space 18 inches square. It pays well to grow Borecole strongly, but good results attend the practice of sowing seeds of these in the open before the middle of March, and more again a month later. The only Broccoli that should be sown under glass is Veitch's Autumn Protecting. Sown now, and by keeping the plants growing, fine Cauliflower-like hearts can be procured early in September, and with the aid of a successional sowing made six weeks hence in the open a supply could be kept up well into January, always providing protection is afforded to the late plants. Either Early London or Dwarf Erfurt Cauliflowers may be sown now in frames to succeed those raised last autumn, or in January this year. For use during August there are none to surpass Eclipse (an early form of Autumn Giant), of which seeds should now be sown in frames. Cabbage plants have been largely destroyed. If not already done, sow seeds at once of Ellam's Dwarf Spring, Wheeler's Imperial, or other quick-growing varieties, and do not long delay in finally planting out. Both Cos and Cabbage varieties of Lettuce should also be found room for on the improvised seed beds, as these will be wanted for planting out in quantity early in April. If the bed is dry water prior to sowing, and cover the seeds with sifted soil. Directly the seedlings are up admit abundance of light, giving air freely whenever the weather permits.

Celery.—Celery seed is slow in germination, and should either have a small bed to itself or be sown in boxes. If wanted very early the seeds of a good white variety will have been already sown in heat; but Celery can be obtained fit for use in September if sown late in February or early in March. White varieties, as requiring the least blanching, should be sown, and to succeed these a good pink variety. Fill pans or boxes with fine loamy soil, make this level, give a gentle watering, and soon after sow the seeds, lightly covering with fine soil. Place in heat, preferably of a moist description, a near proximity to hot-water pipes greatly militating against perfect germination. Cover with squares of glass, and shade heavily until germination takes place, and keep the soil moist. Unless extra pains are taken failures are likely to occur, and the time lost is not easily made up.

Celery and the Frost.—Celery has suffered badly where the tops were exposed. Frost has penetrated clean through the ridges, but when enclosed by soil the thaw is certain to be gradual, and the stalks may yet be found quite sound. The decay will spread downwards, however, and the supply will be greatly reduced. It will also be found that the damage to the tops will hasten seeding, and the best way to deal with the late Celery, when the state of the ground permits, is to lift all carefully and closely bed it in behind a north wall. All should be well covered with soil, and a little rough protection be further afforded in the event of severe frost. This treatment will serve to check heart growth considerably, while the ground now occupied by the rows can be made ready for other crops at once instead of waiting till later.

Onions.—Those who have heavy soils to deal with ought long since to have selected a site for Onion beds, dressing this with half-decayed stable manure something like four barrowloads to the square rod, following with either deep digging or trenching, and laying the surface up roughly. Directly the frost is well out of soil thus treated, fine weather should be selected for further preparing the ground for seed-sowing. Sow soot at the rate of one peck to the square rod, and lightly stir this into the surface. Next, closely trample the ground, get rid of stones and rubbish, level by means of a coarse rake, and then draw shallow drills from 10 to 12 inches apart. Sow the seeds thinly, and make all smooth with a rake. Soot is recommended in all cases, as a free application of this tends to promote strong growth of plant and thereby shorten the time during which the Onion maggot will be able to make beadway, while it also acts as a deterrent of maggot attack. A strong growth of plant is also one of the best preventives of mildew. A loose, rich root-run also favours a strong top-growth, but in this case the roots fail to form properly, thick-necked specimens being the result, hence the necessity of firm soil in all cases. The Tripoli section never keep so well as do the White Spanish types, and are also among the first to succumb to mildew. Brown Globe and James' Keeping are amongst the best.

Parsnips.—If wanted extra fine somewhat early seeds should be sown as soon as the ground can be got into a finely divided state. Supposing it was well manured for a previous crop, which ought not to be a tap-rooted species, no solid manure should be used. If any is dug in it should be buried at least 18 inches deep, an early contact with strong manure causing the tap root to fork badly. The old-fashioned plan of boring deep holes with a crowbar and filling with sifted soil, still holds good in the case of hard, lumpy, or otherwise badly prepared ground. These holes may be 9 inches apart, in rows 15 inches asunder. Three seeds to be sown over each, and the plants resulting must be reduced to one in each case. Very fine, cleanly grown Parsnips can be obtained in that way.

THE BEE-KEEPER.

APIARIAN NOTES.

THE weather since the 18th has become milder, although still wintry; the thermometer rose for a little on the 20th to 40°, this being the highest temperature recorded this year.

Bees have never had a thorough flight, many left their hives only to be chilled to death wherever they rested. So far as I have observed Carniolans are again proving themselves the best winterers. Those in the best condition have kept breeding during the past arctic weather. Many bee-keepers are still sceptical regarding bees breeding during severe weather, arguing it is impossible for them to keep up the necessary degree of heat. But it is by doing this that preserves them in a healthy state by keeping up the temperature for the safety of the young.

As there are neither dust, debris, nor damp on our perforated zinc floors, evils are greatly reduced. It is perhaps premature to say too much in favour of my mode of management yet, but of two apiaries in the same garden I observe 50 per cent. with solid floors are dead, while in those having ventilating floors all are alive. Whatever shortcomings the severe winter has brought about, I sincerely hope the future will make amends, and that arctic winters will not visit us again.—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES.

THE severe frost which has lasted for upwards of seven weeks has now every appearance of going rapidly. To-day, Feb. 21st, the highest reading of thermometer placed in the shade was 43°, and it is the first time the temperature has been so high since December 28th. As the sun was shining brightly at midday a great many bees were on the wing, a cleansing flight at this time proving a great advantage to them; and from a casual inspection during the brightest part of the day I find my stocks have all come through the late severe frost without loss.

As I have upwards of thirty stocks placed in a variety of aspects, the evidence is pretty conclusive that it is not necessary to have large, expensive, and unwieldy hives with wide space round the sides for packing with cork dust, chaff, or similar material to keep the cold out. This, I am convinced, is quite unnecessary. After examining my hives more closely I will report what difference there may be, if any, in the condition of the bees wintered in hives packed with cork dust round the sides, others with air spaces instead of packing, and those with single sides. The majority of my hives have only single boards, but all are covered on the top, with ample ventilation from the bottom.

One thing noticeable is the activity of some stocks in comparison with others on the same stand. From some of the hives there would probably be several hundreds of bees on the wing, other stocks would be quiet and only a few stragglers be visible, giving one the impression that all was not right, but on lifting the quilt the bees were found to be snugly clustered in their hive amid ample stores. I am inclined to think it is the most excitable stocks that are affected in this way, as to all appearance there is no difference in the strength of the colonies.

Another reason may be that the hives with the thinnest sides may be more easily affected by the external warmth, but no doubt bees are like human beings, they vary somewhat in temperament. Other bee-keepers have noticed the same peculiarity, but if one and all come out strong in the spring, and are healthy, good workers, no more is required.—AN ENGLISH BEE-KEEPER.

PROSPECTS OF 1895.

It is a little premature to venture anything like a reliable opinion as to what may be the prospects of the bee-keepers in our border county during the spring and summer of 1895. Of course it was admitted on all hands that the summer of 1894 was anything but a profitable one, for in this locality summer feeding was a necessity to keep the hives in order. Even those who

took them to the Heather derived little or no super honey to repay the outlay; but at the same time the strong hives in most cases collected sufficient stores for winter keep.

As the autumn months were mild and favourable for breeding, most hives with stores either gathered or artificially supplied were strong with bees in the beginning of the winter, and, notwithstanding the two months of heavy snow storms and exceptionally severe frosts during January and February, such hives are strong and in good condition still. In many instances heavy losses have been incurred through the bees coming out for a flight in sunshine and "perished" among the snow; but with a good spring any such loss will soon be recouped.

So much for the better class of hives. However, where hives had only limited stores and few bees, they have been losing a considerable number of bees. As soon as the weather permits it will be for the interest of the owners of such to see that any dead bees which may have accumulated on the floor-board or amongst the combs are cleared away. Twelve months ago the hives were all rearing brood, but at the present time the rearing of brood is all to come, and I need not say that this being the case, there is a great risk of the weaker hives dying out in the spring months unless the weather is all the more favourable. However, we are now more likely to have a continuance of fresh weather, and with a good spring and summer let us hope that 1895 will be a record year for honey gathering.—A BERWICKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Laing & Mather, Kelso, N.B. — *Trees and Shrubs, and Garden Seeds.*

T. S. Ware, Hale Farm Nurseries, Tottenham. — *New Roses and other Plants, Hardy Florists' Flowers, Choice Hardy Perennials.*



*** All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Cyclamen Flowers (S. F.).—The flowers show diversity and purity of colouration, but they did not arrive in good condition.

Red Spider (C. and S.).—Your letter obviously comes within the category of advertisements, but this would not occur to you. Vendors of articles which are not advertised do not expect them to be extolled in literary contributions.

Marguerites (W. S.).—The Marguerites arrived in an imperfect condition; it is one of the *Chrysanthemum frutescens*, being a variety of *Etoile d'Or*. We are unable to say whether the sport is an original one, but we do not know of any like it.

Salix (F. N. R.).—The specimen you sent is a *Salix*, but sufficient was not sent to identify the species. For propagating cut off well-ripened growths about a foot in length and insert in light soil either in the spring or autumn, when they will take root readily.

Analysis of Tulip (W. J. P.).—We have some information on the subject, but cannot lay our hands upon it at present. If we come across it we will insert it in these columns in due course, or perhaps some correspondent may forestall us with the information our inquirer desires.

Lily of the Valley (X. Y.).—There is no difficulty in producing Lily of the Valley flowers every month in the year. The method is to freeze the crowns as soon as they are lifted, or can be obtained in the autumn, and keep them in a frozen condition until they are required. Hundreds of thousands are frozen annually, and are now being retailed. Those who have an ice-house can retard the crowns themselves, but those who have not can obtain them through most nurserymen if they order early so as to give them an opportunity of obtaining them for the time required. Once the crowns are removed and thawed they must be allowed to come into flower at once; they cannot then be further retarded, if this is attempted they soon wither and die. Very often if packed in a box and sent by train during September and October they commence growing in the box.

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Journal of Horticulture.

THURSDAY, MARCH 7, 1895.

MISTAKES IN STRAWBERRY FORCING.

WITH the advent of March Strawberry forcing becomes a comparatively easy matter, and with good treatment a fair return for the outlay involved may be looked for in the shape of large fruit; but even at this season it is not an unusual occurrence to see only a moderately good crop in cases where there seems to be no serious reason why a better state of affairs should not prevail. On the other hand, there are some positions which to the casual observer seem specially adapted for the growth of Strawberries in pots, but which the practical cultivator finds to his cost are quite unsuitable, and that the task of producing good fruits under such conditions proves a very "hard nut to crack." I doubt not that most of us have at various times met with such little difficulties, and that by adapting our practice to suit the requirements of the case have in the end succeeded. I think, however, it generally happens that between the early failures and the ultimate successes many experimental practices are tried before the right one for each particular case is discovered. It seems to me, therefore, that a few notes upon the subject would at the present time be appropriate, and may perhaps be the means of helping some "puzzled one" out of a present difficulty.

Perhaps one of the most frequent causes of failure is subjecting the plants to too much heat in the early stages of growth, the result being that many of them go "blind;" others fail to set their fruit, and in those instances in which setting is accomplished the berries fail to swell satisfactorily on account of the skins becoming hardened shortly after the fruit is formed. There are mistakes in forcing more easy to make than avoid, but at the same time many failures are brought about by the anxiety of gardeners to produce a few early dishes of this much-prized fruit when the conveniences at command do not favour achievement.

Where a suitable forcing house or pit, divided in two compartments, can be devoted entirely to Strawberries in pots, the difficulties above set forth to a great extent disappear, but a very small per-centage of gardeners have these conveniences. Frequently the only positions

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available for early Strawberries are shelves in Pine stoves, Cucumber houses, or other forcing houses in which high temperatures are maintained. Before taking plants into such positions they ought to be prepared by a few weeks' sojourn in a greenhouse, vinery, or cool pit. This will help them to bear without injury the extra heat of the forcing house, where they may remain till the flowers commence expanding. The question then arises what to do with them when in bloom. We know perfectly well if they can be removed to an intermediate house, where the atmosphere is somewhat dry, and a little top ventilation afforded on all favourable occasions, a good set may be readily obtained, but houses or pits offering such conditions are not often at command.

It therefore becomes necessary to compromise matters all round. This I find from experience is best done in the following way. Let us assume for example that our plants are arranged on shelves in a Cucumber house. As they come into flower they should be arranged together in the lightest part of the house, where the syringe may be kept from them, except on very bright days, when a slight "dewing" is often found to aid fertilisation. It is also necessary that the atmosphere of the house be kept somewhat drier for the benefit of the flowering plants; at the same time, if this is carried too far, those advancing into flower, as well as the Cucumber plants, will become infested with red spider. Damping the floor of the house should therefore be discontinued, and the Strawberry plants not in bloom, as well as the Cucumbers, be freely syringed once or twice daily, taking care to have the atmosphere of the house fairly dry at midday, a little ventilation, of course, being given and continued throughout the afternoon, except during very inclement weather. As soon as a number of plants have set a few fruits each (from five to nine) remove the other flowers, and arrange the plants in the warmest part of the house, filling up the places vacated with others advancing into bloom. Plants swelling their fruits require syringing several times daily when very bright weather prevails. When the colouring of the berries has well advanced, syringing must, of course, be discontinued, and for that purpose the plants ought to be kept apart from those not showing signs of colour.

When the berries are evenly coloured it is a great advantage to be able to remove the plants to a cooler structure for a day or two before the fruit is gathered; but unless they can then be kept from cold cutting winds, I prefer to keep them in the warmer quarters till the fruit is gathered, because in cold airy houses Strawberries which have been ripened in much heat quickly lose their gloss, and are rarely improved in flavour.

Another frequent mistake in Strawberry forcing is having the shelves fixed too near the glass, so near in fact that the leaves when fully developed are in actual contact with it. The result of this practice is that during bright days evaporation is so rapid that it is almost impossible to keep the plants free from red spider, and the swelling and ripening fruit is browned and burnt by the great heat, a condition of affairs which seems to puzzle not a few cultivators. Where this is so, my advice is, try the plan of keeping your shelves 18 inches from the glass, and I shall be much surprised if previous difficulties do not vanish. To assist fertilisation I prefer tapping the stems with a stick to the common practice of touching the anthers with a soft brush, and during bright days I like to syringe the flowers lightly. Watering is without doubt an important detail in Strawberry culture, and to the many mistakes made in performing it may be traced not a few failures. There are times during bright weather when dealing with plants in active growth when it is not an easy matter to over-water. Then in order to keep them in a satisfactory state dryness at the roots must be anticipated rather than allowed to take place, otherwise diminished vigour and undersized fruit will be the result.

To allow the soil to become dry enough to crack away from the sides of the pot is a sure indication that this undesirable state of affairs has taken place. On the other hand, when we have a succession of dull days the soil ought to be allowed to get slightly

drier than usual before water is given. It is when bright days follow dull ones that the greatest damage is done. At such times if the plants are carefully looked over about noon, in addition to the early morning watering, serious mistakes may often be avoided. The state of the weather in regard to dullness or brightness must give the key to the whole matter. While the fruits are swelling, weak liquid manure given at each alternate watering and an application of chemical manure on the surface soil will be sufficient to produce the best results.—FRAGARIA.

DOWNHILL.

PRESUMABLY men of the gardening occupation find in an active life so much uphill work that considerations of the reverse are banished to the dim and distant future. "Sufficient for the day is the evil thereof." Quite so; more than sufficient some days bring—circumventing weather, and fighting the minute, subtle forms of insect life. We are surrounded by enmity, yet not destitute of friendship as evinced by the outward and visible signs of requests for roots of this, slips of that, or "What must I do for my plants?" So on, on, wrestling with foes, courteously facilitating the horticultural requirements of friends, happy in doing either or both, and happy in a busy life, head, hand, and eye concentrated on the object dear to the heart—gardening.

So it is, I think, with most of us, and so it should be, the chief end and aim being to advance the loved art, which must in its turn elevate and dignify the class of which we are units—gardeners. Nor is the latter less worthy of consideration, for "the proper study of mankind is man." It is, indeed, the principal object to which all considerations are subordinate. Our work, or all good work; our thoughts, or all good thoughts, directly or indirectly tend to the welfare of the human race. Yet, it is seldom time allows for more than a passing thought of this, the higher object. True, the problem is too vast, unless for political economists. Yet there is one section of it—one tribe of the race—which should receive more than a passing thought from us; that is ourselves—gardeners. This problematic subject is one worthy of pausing at occasionally and pondering over. Some do this perhaps, yet the thought arises that the bulk of the great army of gardeners quartered in the British Isles do not. Such thoughts are but reasonable when scanning the report of the Gardeners' Royal Benevolent Institution and noting the few, the comparative few, that recognise its claims to the attention of all.

What percentage of men in fairly good positions participate in its benevolent work? Probably it is not possible to say, for statistics are not obtainable. It may, at least, be reasonably supposed that the number does not exceed 1 per cent., and perhaps may be more correctly estimated by a minute fraction of that. From this may be deduced that this Institution, reared on the noblest foundation, is practically unrecognised by us as a class; by the many who could help the few, some of whom it is morally certain will one day seek to reap where they have not sown.

Why is it so? Is it that it is unknown, or if known the knowledge of it is so slight that the object of it is not made sufficiently clear? That it is heard of to receive but a passing thought from men whose life is one of thinking and of thought essentially elevating and humanising, appears evident. Few things are done or left undone without a reason. How is it then that the Gardeners' Royal Benevolent Institution is ignored by so many good and capable men? Speaking for myself, and I venture to say for some few others, we should like to know the reason why. So much so that I would fain ask the favour of space in these pages for any answers the question might elicit.

Not any of us can ignore the fact that there is a turn in the path of life where the downhill journey commences. This stage may be comparatively easy, smoothed by the success of earlier exertions, from which frugality and prudence have provided a margin for the rainy day, and this perhaps augmented by some consideration from others of long and faithful service.

All such things give dignity to the journey, and though downhill to the inevitable, it presents no sorrowful side. But can there be any more pathetic picture than the reverse; to see a worn and weary brother going downhill destitute, alone? To the world at large he is but one of the unsuccessful, and the world is but too ready to give him a push, for one of its maxims is "Nothing succeeds like success." But to us, is he not a gardener and a brother? One, who perhaps has bravely "stemmed Misfortune's tide," until sickness has cramped his energies, and now he drifts—drifts unsuccoured on, out into the great lone ocean of the world.

Such cases rarely, perhaps, come under immediate notice, but they are not rare. Those who receive the yearly report and ballot

paper of the G.R.B.I. and note the applicants for the bounty accompanied by the brief biography setting forth their title to the votes, see depicted the seamiest side of the seamy side of life. Sad, but many shades brighter is it to note one who has subscribed for many years being placed without election on its books. One, who has in the health and vigour of manhood made the small sacrifice of fivepence (a fraction less) per week; who has by this means supported the institution, nor allowed any selfish motive shut out the fact that he is his brother's keeper. Both of these examples are yearly presented in the report, the one who has thought for others, the one who has not. Both at last turn to this haven of refuge, but one is taken, the other—too often—left. So it must be until each bears his small share of the burden and enlarges the resources. All can pity these painful cases; some may criticise, yet not those who hold aloof for "People who live in glass houses must not throw stones."

There are unfortunately various illusions attracting from what appears to me a plain duty. One voice whispers, "Charity begins at home." If this was a fund for supplying tall hats and top boots to some far off cannibal island, it might no further concern us, who are concerned with too many things to heed the "noble savage," but it is at home and in our own (large) family. Still another voice says, "I have a place for life." Capital places are these, if they were not another illusion. The writer had one of these places, nor was it failed to be impressed on him at the period of installation. Unfortunately it happened to be for the more valuable life of an employer, and death makes appalling changes. Life is made up of such illusions, but the fewer we allow to cheat us the better.

Instances could be adduced of men I have known, respected, and respected still, whose names are to be found on the books of the bounty; indeed, one can pay them more respect, for there can be nothing derogatory to the man going downhill in clinging to the support he has helped to strengthen in the day of his prosperity. But there is something very sad in the numerous examples of those failing to have done so, and finding too late they are precluded from its benefits, not from lack of sympathy, but from want of room.

"I may not need it," probably sums up all illusions. We will, however, take it for granted—which is a very bold thing to do—that you (a non-subscriber) will not need it. May it be so. Yet let not that thought preclude you from a good action, nor deter you from a plain duty, so will you be "Above all pain, yet pitying all distress."—E. K., *Dublin*.



DENDROBIUM SPECIOSISSIMUM, Rolfe.

We learn that Messrs. Hugh Low & Co. of the Clapton Nursery have now obtained further materials of the above splendid new species, which was named some time ago by Mr. Rolfe, but has not yet been introduced to cultivation. It was discovered many years ago on Mount Kina Balu, in Borneo, by Sir Hugh Low, who found it growing on a Magnolia. He describes it as being much in the way of *Dendrobium formosum* in general character, but the stems are much more covered with a pubescence of short black hairs. The flowers are pure white, except a blotch at the base of the lip, which is rich purple-red. The plant is of dwarf habit and very floriferous, bearing trusses of about four flowers, which are larger than those of *D. formosum giganteum*. We are glad to learn that so fine a species may soon be expected in cultivation, as it is likely to prove a great acquisition.

PHALÆNOPSIS YOUNGIANA.

THIS charming Orchid was exhibited at the last meeting of the Royal Horticultural Society by Baron Schröder, and gained a first-class certificate. The character of the flower is admirably depicted in the woodcut (fig. 37). It is a splendid variety with broad dull white petals, which are slightly tinged with a pleasing rose hue at the base. The upper sepal of the flower is of the same colour, while the lower are of a very pale rose-maroon thickly covered with spots. Pure white and heavily spotted deep rose forms the ground colour of the lip. The flower is of splendid form, and one of the most pleasing of the *Phalænopsis* group.

ODONTOGLOSSUM BLANDUM.

WHEN well grown this is a charming little *Odontoglossum*, which thrives well in the cool house. The plants grow less than a foot in height, and have somewhat flattened pseudo-bulbs and narrow bright green leaves. The spikes are produced from the base of the bulbs, and carry from eight to twelve flowers, each about 1½ inch across, and slightly fragrant. The sepals and petals are creamy white, irregularly spotted and blotched with brownish crimson; the lip is about an inch in length, narrowed at the base, broader in front, and tapering to a point, wavy on the edge, and irregularly toothed; this is also spotted, and has a lemon-coloured crest. The Orchid is not even now by any means often found in collections, and was formerly very rare. It must not be over-potted, and does best suspended near the roof in order that the air circulates freely about it in the summer, and in the winter the light is not subdued. It is a native of New Grenada, and first flowered in this country about twenty-five years ago. A fine plant was recently in flower in the collection of Canon Warre of Bemerton Rectory, near Salisbury, bearing two spikes of brightly coloured flowers.

DENDROBIUM NOBILE.

Some very fine forms of this grand old *Dendrobium* are flowering with Canon Warre of Bemerton. *D. nobile* Wallichii is represented by a large plant with very tall stems and richly-



FIG. 37.—*PHALÆNOPSIS YOUNGIANA*.

coloured flowers. This contrasts finely with some of the lighter forms, such as *D. nobile elegans*, with large well-formed flowers of great substance. Several other varieties of *D. nobile* are also in flower, as well as the typical *D. crassinode* and the highly coloured *D. crassinode Barberianum*. These, with *Saccolabium violaceum*, a fine lot of *Cattleya Trianae* in variety, and some fine specimens of *Coeogyne cristata*, make a very interesting and beautiful display.

LÆLIA CINNABARINA.

This delightful old kind is in no way inferior to the newer and better known *L. harpophylla*, which it to a certain extent resembles. The spikes, however, are longer, and carried much more gracefully than in the latter kind, and in the best types are equally bright in colour. The pseudo-bulbs on strong plants grow to a height of 10 or 12 inches, and are sometimes of a bronzy red tint, this usually indicating a highly coloured form. They are swollen at the base, tapering upwards, and each bears a single leaf. The spikes issue from the apex of the pseudo-bulbs, and bear from six to ten large flowers. The sepals, petals, and lip are all narrow and bright orange red, the latter sometimes edged with white.

This species should be much more grown, as its culture presents no difficulty. It thrives in pots or baskets, and in the latter is especially attractive when in flower. The plants should be grown

in the usual peat and moss mixture, and must be carefully watered during the winter months. It thrives in the Cattleya house in a light position, and requires abundance of water when growing freely. *L. cinnabarina* is a native of Brazil, from whence it was introduced in 1836. A plant bearing two spikes with six and eight flowers respectively is now in flower with Canon Warre of Bemerton, where Mr. Lompord grows it well suspended from the roof in wood baskets.

DENDROBIUM CAPILLIPES.

Among the smaller growing Dendrobiums there are many charming and beautiful species which are in nowise deserving of the neglect into which they have fallen, even though they lack the showiness of some of the more popular kinds. *D. capillipes* is one of these, seldom growing more than 6 inches high, but when well flowered is sure to attract attention. The plants are deciduous, and the flowers occur in racemes consisting of from two to eight blossoms; these are bright yellow, with a deep orange blotch on the lip. This species thrives on blocks or in small shallow pans suspended near the glass. It does not like much material about its roots, and this should be made very firm. Good peat fibre and sphagnum with a few finely broken crocks will suit it well. Being a native of Moulmein it requires a hot and very moist atmosphere with ample of sunlight while making its growth. When this is finished less heat will be required as the foliage falls, keeping the plants quite dry in a cool house for a few weeks in the winter.

ODONTOGLOSSUM CORDATUM.

Although this Orchid cannot compare with such as *O. Pescatorei* or *O. crispum*, it is, nevertheless, an interesting and handsome species. The pseudo-bulbs of this kind are ovate, light shining green, with leaves 6 inches in length. The spikes are erect, branching, and many flowered; the individual blossoms being about 3 inches in diameter. The sepals and petals are long, twisted, yellow, spotted and freely barred with chocolate. The lip is broad at the base, pointed in front, white, with yellow and purple lines. This thrives well in pots with rather more heat than the coolest section of *Odontoglossums* require, and likes an abundance of water all through the season. *O. cordatum* is a variable species with regard to shape and colour, but all the varieties are worthy of extended culture. It was introduced from Guatemala in 1837.—H. R. R.

THE FLORISTS' TULIP.

[By JAMES W. BENTLEY, Hon. Secretary to the Royal National Tulip Society.]

CHAPTER V.

(Continued from page 160.)

THE rings or crinolines must be of several sizes. I find that they are best made of stout shavings. The shavings are made by a joiner from the edge of a 1 inch deal board, the plane he uses having the cutting edge so set as to take off the shaving much thicker than is usual. These shavings are cut into lengths of from 4 to 9 inches, and the crinolines are completed by sewing the ends together.

When packing time arrives a suitable crinoline is selected and carefully inserted into each flower, taking great care not to bruise or injure it in any way. The petals are then made to clip up close to the crinoline, and kept in that position by wrapping some suitable material round the outside of the flower. The best known to me is that soft fleecy thread known to cotton-spinners as "rovings," which combines in itself the softness of cotton wool and the convenience of a thread-like form. Tulips wrapped on the outside with several turns of this material are splendidly packed, and will undergo a long journey quite unharmed.

As each Tulip is packed it should be transferred to the travelling box, which is contrived in such a way that the stem of each flower rests in a zinc tube filled with water. The bloom itself is kept from contact with the water by a neat contrivance made of wood, which fits like a cork into the mouth of the zinc tube, and has a small hole through which the stem passes and reaches the water in the tube. This method of conveyance is not absolutely necessary, as Tulips will keep for many hours out of water, but if taken to the place of exhibition overnight they must be put into it on arrival, or they will be unfit for show the next day. Many an amusing reminiscence occurs to me as I write of hotel bedrooms with every available object, either of use or ornament, filled with Tulips, and the grower taking his rest, with his splendid blooms around him, the night before a show.

On arrival at the place of exhibition all crinolines and other packing materials must be removed, and each of the flowers carefully examined for defects. There are, fortunately, "no ways

that are dark or tricks that are vain," in preparing Tulips for exhibition. No "dressing," so necessary in the case of the Carnation and Pink, is required, and the only thing to be done is to sweep out and clear away fallen pollen from the inside of the flowers, so that the base and marking can be clearly seen, and this is easily effected by means of a small dry camel-hair brush. Sometimes an anther will be found fallen off the filament, but this can easily be replaced, as the filament penetrates somewhat deeply into the lower part of the anther.

Tulips are generally shown in "stands," which are made of thin, flat boards of suitable size, painted an unobtrusive shade of green, and fitted with feet so as to elevate them a little above the surface of the tables upon which they are arranged. The feet at the back are higher than those in front, so the surface of the stand slopes, enabling the spectator to have a better view of the flowers than if kept level. The stands are perforated at regular intervals with round holes, in which can be fitted the zinc tubes from the travelling box. It will be readily seen that if the flowers to be staged have been determined upon before, and arranged in the travelling box, they can soon be put in the stands, as both tube and flower can be moved together.

The chief prize at the National Society's show is for a stand of "twelve dissimilar Tulips, two of each class," which means that the twelve must comprise two dissimilar varieties of feathered roses, feathered bizarres, feathered bybloemens, flamed roses, flamed bizarres, and flamed bybloemens. The flowers are staged in three rows; the largest flowers are best put in the top row of the sloping stand, the smallest in the bottom, and the medium-sized ones in the middle row. Care should be taken to diversify the colours, and not stage all one colour together. It is good to have the flowers as near the same shape and size as possible, as a stand looks bad if it contains large long-cupped flowers and small shallow saucer-like blooms. The wooden stands are not compulsory, and the exhibitor if he prefers to show his flowers in bottles may do so; they do not, however, show themselves so well as in stands. Each flower, whether in the stands or bottles, must have its name written on a label and gummed down, just underneath it. Prizes for stands of six, three, and two flowers are offered, and also for single blooms in each of the six classes in rectified flowers, and the cultivation of breeders is encouraged by suitable prizes.

In awarding the prizes for rectified flowers judges think more of good marking and size than of perfection of form or beauty of colour, although a poorly marked large flower will always be beaten by a well-marked smaller one. Still, as an old judge is fond of remarking, "Good big ones will beat little pretty ones." Breeders should be large in size, good in form, and absolutely free from accidental blemishes, such as specks or marks caused by frost or bruising, to stand well in the opinion of the judges, or censors, as they used to be called in the south.

I will now leave this part of the subject, as I feel that however much more I wrote it would all be inadequate, and probably confusing. The best way for the novice to learn is to take his flowers to a show, where he will receive a kindly welcome, and learn more in the day than books would teach him in a twelvemonth.

CHAPTER VI.

OBTAINING SEEDS AND SEEDLING RAISING.

The late Dr. Horner of Hull, an enthusiastic Tulip grower, whose writings illuminate the pages of the older floricultural papers as much as those of his son (the Rev. F. D. Horner) delight us in the journals of to-day, in an article contributed to the "Florist," says, "Every florist worthy of the name either does or ought to aim at raising seedlings which are an improvement on older varieties; in this, indeed, lies the chief and true secret of delight in floriculture." In this passage the good Doctor states clearly the position of the true florist, which is, of course, quite a different one from that of the botanists, who have often little or no sympathy with the florists' aims and objects, and not unfrequently unsparingly condemn them. In this they follow the lead of the great Linnæus, who terms our varieties "monsters," and thus deridingly describes the florists:—"Such, by an over-great study and assiduous inspection, have discovered such amazing wonders in flowers as no man, the most clear-sighted in the world, could ever discern but those who are versed in this study. The grand objects of their attention are the most beautiful flowers, such as Tulips, Hyacinths, Anemones, Ranunculuses, Pinks, Carnations, Auriculas, and Polyanthus. To the hidden varieties of these flowers they have given such pompous names to excite wonder and astonishment, and are really ridiculous. These men cultivate a science peculiar to themselves, the mysteries of which are only known to the adepts. Nor can such knowledge be worth the attention of the botanist; wherefore, let no sound botanist ever enter into their Societies." When I came across this weighty condemnation by the great Swede, quoted in

Dr. Thornton's sumptuous volume, "The Temple of Flora," published in 1812, I must own I felt rather indignant at its gratuitous nature, for no one knew better than Linnæus that the labours of the florist had greatly augmented floral variety and beauty in the gardens of the world, without injuring in any way the species or types which it was his life-long work to classify and describe. However, lest we sink under the fearful weight, let us remember that a greater man than Linnæus has something to say on our side, for Shakespeare, in "The Winter's Tale," written 1601, has the following lines for the characters, Perdita and Polixenes:—

PER. the fairest flowers o' th' season
Are our Carnations, and streaked Gillyflowers
Which some call Nature's bastards:—Of that kind
Our rustic garden's barren, and I care not
To get slips of them.

POL. Wherefore, gentle maiden,
Do you neglect them?

PER. For I have heard it said
There is an art which in their piedness shares
With great creating Nature.

POL. Say there be,
Yet Nature is made better by no mean
But Nature makes that mean: So over that art,
Which you say adds to Nature, is an art
That Nature makes. You see, sweet maid, we marry
A gentler scion to the wildest stock,
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend Nature, change it rather, but
The art itself is Nature.

Our great poet defends the art of the florist so well that one is led to wonder whether he had interested himself in some patch of "streaked Gillyflowers" in an old-world garden down at Stratford-on-Avon, or admired them in the pleasure grounds of some of his aristocratic friends near London. One could almost excuse the severe language of Linnæus, if one might suppose that it was written after an initial attempt at "dressing" a Carnation, and comparing the result with another manipulated by one of the "adepts" he so scornfully condemns. But, speculation apart, florists may rest assured that Nature never produced our glorious Tulips, Roses, Carnations, and other flowers to be neglected by any haughty pretender to superior reason.

THE FUNCTIONS OF ROOT, LEAF, AND BUD.*

MY subject being a very large one, to bring it somewhat within the requisite compass I must be content to treat it in a general and superficial manner, and confine my observations to the functions of these organs as they appear to me in relation to a few hardy deciduous fruit trees, and try and deduce from it a few lessons of practical utility to us as gardeners.

THE ROOTS.

We all know that roots have two distinct functions to perform—one to hold the tree or plant in a firm stationary position, the other to gather and supply the food which the tree receives from the soil. The stability of the tree is chiefly secured by the larger or more woody portions of the roots; in young trees, and plants from seed, by the tap root, which is the first formed. In properly grown fruit trees, however, the tap roots are destroyed long before they are permanently planted, and though some of the other roots may afterwards partake of the nature of tap roots—that is to say, become unduly long, strong, woody, and strike deep into the soil, it should be the aim of the cultivator to prevent it.

The most important roots are, of course, those which take up the materials for nourishment to be supplied to the tree. Those slender thread-like filaments we usually call "fibres," the feeding hairs or glands, are situated around or near their growing points. These and the fibrous parts which bear them are annual in duration. "In all roots and under every mode of management the fibrous parts are strictly annual; they decay as winter approaches, and are produced with the returning vigour of their parent in spring."—"Johnson's Gardeners' Dictionary"). These roots vary in their nature in different species of trees as well as in different soils, the roots of some appearing to thrive in certain soils better than others; hence if a certain variety of fruit does not flourish to our satisfaction we work it on another stock, the roots of which we may consider, or have proved from experience, are better adapted to our particular soil.

I shall not attempt to define the exact nature of the materials the roots imbibe; it is unnecessary for my purpose, though I may put them down roughly as carbonates, phosphates, and nitrates; these compounds being soluble, the roots take them up dissolved in water. The compounds of carbon are of very great importance, carbon forming a large proportion of the wood of all trees, as well as entering into the composition of fruits, carbon, oxygen, and hydrogen composing those important carbohydrate bodies, starch, cellulose, sugar, and gum. Nitrogen does

not exist very largely in vegetation, yet its conversion by chemical combination with oxygen and soda or potash to form nitrates, is so important that from a practical point of view it may be considered synonymous with fertility, as in reality the soil will be fertile in proportion to the extent in which this process of nitrification is effected. It is therefore necessary that we should have a clear conception of this process, and the conditions most favourable for its development, so as to be able to assist Nature to our own advantage.

There is abundance of nitrogen all around us, forming as it does about five-sixths the bulk of atmospheric air; it also exists as ammonia both in the air, soil, and decaying bodies. But the process of its conversion into nitrates, or nitrification, is only carried on in the soil, associated with a low form of organised life, and the necessary presence of atmospheric air and warmth. These two latter conditions we can do much to promote by frequently working the surface of the soil and exposing it to the action of light and heat, and this should always be attended to, because in this country "The temperature of the soil during most months of the year is very much below the most favourable for the development of nitrification."—"Johnson's Elements of Agricultural Chemistry"). Wet soils to the same end should be drained, and in many cases liming is highly beneficial. "In waterlogged soils a process the reverse of nitrification is apt to go on, whereby the nitrates present in the soil becomes deoxidised, or denitrified, with the result that the nitrogen is set free and escapes."—"Johnson's Elements of Agricultural Chemistry"). All this points to the extreme necessity of well working the soil, so as to promote the free absorption of atmospheric air and sun heat, as well as keeping the roots of all trees and plants, especially fruit trees, as near the surface as possible, where the extra heat and fertility of the soil will promote their growth.

Roots growing near the surface of the soil are always more fibry, and multiply their feeding hairs much more abundantly than those found deeper down. They also appear to multiply in the immediate presence of decaying vegetable matter, and to have the power of extending themselves a very considerable distance in the direction in which such matter exists; but apparently "They have little or no power of selecting their food, but they appear to take up whatever is presented to them in a sufficiently attenuated form. Their feeding property depends upon the mere hydrometrical force of their tissues."—"Lindley's Theory and Practice of Horticulture").

If this statement is reduced to its logical conclusion it amounts to this, that pretty well the same materials (compounds) are supplied in the sap to all kinds of trees and plants growing in the same kind of soil, and that the difference in the nature of the various plants arises from the different construction of the resultant compounds derived from the elements in the sap after they have been decomposed in the leaves, and that those elements taken up in the sap by the roots and not required by the particular species of tree are afterwards returned to the air or soil, either as compounds or in elementary form. To announce such an opinion I fear would be considered very heterodoxical, so I will leave this part of my subject for the present, and pass on to a consideration of other very important organs of plant life.

THE LEAVES.

I will not waste time in attempting to define what leaves are, the sort of leaves I am referring to will be perfectly understood, so we will proceed to consider not what they are, but what they do, and how they do it.

"The functions of respiration, perspiration, and digestion, which are the particular offices of the leaves, are essential to the health of the plant, its healthiness being in proportion to the degree in which these functions are duly performed."—"Lindley's Theory and Practice of Horticulture").

"The leaves have been compared to the lungs of animals, the functions of which they reciprocate, for whilst in the lungs of animals an absorption of oxygen and an evolution of carbonic acid is observed, in the leaves it is the carbonic acid which is absorbed and oxygen is disengaged."—"Bloxham's Chemistry: Inorganic and Organic").

The leaves, then, are the organs in which are carried on the very important functions of decomposing the compounds taken up in solution by the roots, in the form we know by the name of sap, and which, having passed through the stems and branches unchanged, are there, by the action of solar light and heat, converted into other compounds required to build up the tissues of all the organs of that particular tree, to which these particular leaves belong.

It must have been observed by most practical gardeners that the sap of a deciduous tree in spring before the leaves are developed is perfectly clear and limpid, and in no way differing in general appearance from ordinary water. This is particularly noticeable in the bleeding of Vines. If Vines are pruned late, and the wounds have not had time to heal before the rising temperature causes the sap to expand in the tissues, and the buds to develop, the sap oozes out of the ends of the severed shoots, and falls in clear sparkling drops, similar in taste and smell to ordinary water. This fact might be illustrated in many ways, showing that the sap is but very little if at all changed in its passage through the roots, stem, and branches, before the leaves are produced; but as soon as the leaves are developed all this is changed. The sap, before so clear, in bleeding Vines becomes viscid and gummy, showing that it has passed through the leaves, and these leaves have commenced their ordinary functions of decomposition and reconstruction of the compounds necessary for all the purposes of growth of wood, fruit, new leaves, and buds, which organs we will next pass on to consider.

(To be continued.)

* A paper read before the Bournemouth and District Gardeners' Mutual Improvement Association by Mr. H. ELLIOTT.



EVENTS OF THE WEEK—On Tuesday, March 12th, the Committees of the Royal Horticultural Society will meet at the Drill Hall. The annual meeting of the United Horticultural Benefit and Provident Society will be held on Monday, the 11th inst., at the Caledonian Hotel, Adelphi Terrace, Strand.

— **WEATHER IN LONDON.**—Cold north and north-easterly winds have prevailed since our last issue, accompanied on Sunday and Monday with slight fallings of snow, several degrees of frost being registered. On Wednesday morning the weather, though somewhat milder, was dull and cloudy, with some indications of a much-desired change.

— **WEATHER IN THE NORTH.**—The frost has not been of great severity during the past week. On Thursday, the 28th, there were 4°, and a thaw set in subsequently. In the evening rain fell for some hours, and with a high westerly wind it seemed that a confirmed change was imminent. By midnight frost again set in, and 2°, 5°, 7°, were registered on the first three mornings of March. Sunday was a day of intense cold, with a biting wind from the north. On Monday morning the thermometer registered 5° of frost, the weather was cold and dull, and in the evening somewhat milder, and on Tuesday morning inclined to thaw. On Saturday the railway in the extreme north of the country was for the fifth time this winter blocked by snow.—B. D., *S. Perthshire*.

— **ROYAL HORTICULTURAL SOCIETY.**—The next meeting of the Royal Horticultural Society will be held on Tuesday, March 12th, in the Drill Hall, James Street, Westminster. Special prizes are offered for Daffodils, and at 3 P.M. a paper by Mr. Collenette of Guernsey on the "Diseases of Tomatoes" will be read.

— **THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.**—The Committee of this admirable Institution have been fortunate in obtaining the consent of the DUKE OF FIFE, K.T., P.C., to preside at the fifty-sixth anniversary festival dinner at the Hotel Metropole on June 28th next. A large assemblage may be expected on the occasion, and a substantial addition to the funds of the Institution.

— **UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.**—The annual meeting of this Society will take place at the Caledonian Hotel, Adelphi Terrace, Strand, on Monday, March 11th, at 8 P.M. Mr. G. Gordon will preside. We shall be glad to see a good attendance on this occasion.—W. COLLINS, *Secretary*.

— **THE NATIONAL AMATEUR GARDENERS' ASSOCIATION.**—We are glad to see by the report and financial statement that this association of amateur gardeners is in a healthy state. Medals and other prizes are awarded for excellence in cultivation by amateurs, and instructive papers periodically read by authorities on special subjects in connection with floriculture. Mr. W. B. Crane, 4, Woodview Terrace, Archway Road, Highgate, is the Hon. Secretary.

— **DEATH OF MR. THOMAS BAINES.**—We regret to have to announce the death of Mr. Thomas Baines, the famous specimen plant grower and judge, which occurred on Saturday last at Palmer's Green, near London, as the result of an attack of influenza, culminating in pneumonia. For some years past Mr. Baines had followed with much success the occupation of landscape gardener, and he has left the stamp of his taste and skill on many estates. Though Mr. Baines was such an accomplished plantsman he possessed great knowledge in the various departments of gardening. He was an extremely active man, physically and mentally, an excellent worker and prolific writer. His volume on "Stove and Greenhouse Plants, their Propagation and Cultivation," is a valuable work of reference, and has been helpful to many who have sought information on those subjects. Mr. Baines was an extremely genial man, and always willing to give of his store of knowledge to all who needed such assistance as he could render. He was widely known and highly respected, and a host of friends will deeply sympathise with his devoted daughters and valued helpers in life in their great bereavement. The funeral is announced to take place on our date of publication (Thursday) at 11.45 in the Great Northern Cemetery, New Southgate, N. Mr. Baines was 72 years of age.

— **"KEW BULLETIN."**—The "Kew Bulletin" for February contains chapters on Coffee Cultivation at the Gold Coast, Decades Kewensis, Agricultural Farms in the Bombay Presidency, Storing Home-grown Fruit, Iboga Root, New Orchids, Siam Plants, and various miscellaneous notes.

— **NATIONAL CIDER ASSOCIATION.**—We have received a circular on the above subject. The object is the establishment of a central organisation representative of all persons concerned, directly or indirectly, in the cider-making industry of the United Kingdom in order that, when questions which affect their interests arise, they may be able to give expression to their views thereon with more force and effect through such an organised body than they could individually. A consultative committee has been appointed, of which C. W. Radclyffe Cooke, Esq., M.P., is the Chairman, and Mr. E. Sansom, 27, Clement's Lane, Lombard Street, London, Secretary.

— **DEATH OF SIR FRANCIS WYATT TRUSCOTT.**—It is with regret that we have to record the death of one of the best known men in the City of London, Alderman Sir Francis Truscott. He was elected Lord Mayor in 1879, and raised large sums of money for various public purposes. Sir Francis Truscott was a Magistrate for London, Middlesex, Surrey, and Cornwall; a Commander of the Orders of Leopold of Belgium and the Saviour of Greece, as well as an Officer of the Legion of Honour. He was for many years head of the great wholesale stationery firm of Messrs. James Truscott & Sons, Suffolk Lane, and was succeeded in that position by his son, Mr. George Wyatt Truscott, who in turn it is expected will become an Alderman, a position for which his talents well fit him. Sir Francis took great interest in his estate, Oakleigh, East Grinstead, where he made an excellent garden, which has been admirably managed for several years by Mr. F. Dann.

— **AUSTRALIAN ORCHIDS.**—The Government of New South Wales has issued a part of the late Mr. Fitzgerald's extremely valuable work on Australian Orchids. It will be remembered that after publishing some eleven parts full of original observations, and enriched by numerous admirable plates illustrative of structure and function, Mr. Fitzgerald unfortunately died in August 1892. A large number of drawings were left, and these, so far as they are sufficiently complete for the purpose, the Government has decided to publish under the editorship of Mr. Henry Deane. The thanks of all interested in Orchids will be most cordially tendered to the Government and to Mr. Deane.

— **THE total rainfall at Abbots Leigh, Haywards Heath, Sussex, for February was 0.27 inch, being 2.13 inches below the average. The heaviest fall was 0.14 inch on 24th, 0.10 inch of the amount was snow, which fell during the first week. The maximum shade temperature was 44° on the 24th and 28th, the minimum 6° on the 7th and 9th; mean maximum 35°, mean minimum 21.10°. Mean temperature 28.05°, which is 8.41° below the average of the past seven years. From the 22nd January to the 28th February there has only been four nights that the thermometer has not fallen below freezing. March has come in milder, with showers.—R. I.**

— **FORCING LILACS.**—The fragrant flowers of Lilacs are always prized when they are obtained early. After being potted they should always be kept for a few weeks in the open air, with the pots plunged in ashes or cocoa-nut fibre refuse, as the plants respond more quickly to the influence of heat and moisture when taken into the forcing houses than do those which are lifted and placed under glass at once, even if they are brought on slowly. It also frequently happens that both Lilacs and Guelder Roses flag badly in bright weather about the time the flowers commence to show colour. This may be partially prevented by plunging the pots in the open air after lifting, and then bringing the plants on gradually in vineries from the time the Vines are started.—H.

— **DEATH OF MR. JOSEPH LAKIN.**—It is with much regret we have received intelligence of the death of Mr. Lakin, which occurred at his residence, Temple Cowley, near Oxford, on Monday night, the 4th inst. Mr. Lakin had not been in his usual health for some time past, and this occasioned his recent retirement from duties connected with horticultural societies in which he took an active interest. Mr. Lakin was an ardent florist and an excellent man. Our correspondent who sends us the sad news, observes:—"I saw Mr. Lakin on Sunday afternoon. He had read the 'Florist's Tulip,' by Mr. Bentley, in the *Journal*, with much interest, and his end must have been, as it were, a dream of flowers." Mr. Lakin was sixty-seven years of age; he leaves a widow and two children, one of whom is married.

— **READING HORTICULTURAL SOCIETY.**—As is announced by advertisement, an exhibition of bulbous plants and other flowers will be held in the Queen's Hall, Reading, on Tuesday, 15th inst. Mr. Wm. Walker, Dunollie, Reading, is the Secretary of the Society.

— **PRIZES FOR PHOTOGRAPHS.**—With the view to obtaining the best pictorial representations of their specialties in flowers and vegetables, Messrs. James Carter & Co. are offering a series of cash prizes, particulars of which can be obtained from their establishment in High Holborn.

— **VEITCH'S SELF-PROTECTING BROCCOLI.**—Having grown this valuable Broccoli for several years I can recommend it as one of the best varieties in cultivation. At the end of December last I cut several heads, beautifully white, solid, and compact, which, after being divested of their outer leaves, weighed from 11 to 13 lbs. each. The plants were grown between the rows of Potatoes without any extra attention whatever.—H. MASON, *Bisbrook Hall, Uppingham.*

— **THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.**—At a meeting of the above Society held on February 26th a paper was read by Mr. Crofts, The Gardens, Tranby Croft, on "The Cultivation of Tuberous Begonias." Begonias, he said, are unsurpassed as summer bedding plants, and at the same time cheap to purchase, also so easy to raise and preserve, that all should grow them for bedding plants. But to see them at their best inside culture is to be recommended.—F. L. T.

— **FEBRUARY WEATHER.**—The weather during the past month has been the severest I recollect. The mornings of the 6th, 7th, 8th, 9th, and 10th were the sharpest. On each occasion the thermometer was down at zero on the snow line, whilst on the morning of the 8th the mercury was 3° below zero. Roses and tender shrubs have suffered badly, and the whole of the Broccoli are destroyed. The month on the whole has been very dry; only 0.47 of rain and snow was registered, against 1.71 of 1894.—E. WALLIS, *The Gardens, Hamels Park, Buntingford, Herts.*

— **FEBRUARY WEATHER IN SOUTH WALES.**—The following is a summary of the weather here for the past month. The sun shone on twenty-three days. Total amount 104½ hours; maximum, 8½ hours on the 16th; minimum, quarter hour on the 19th. The rainfall was the lowest on record, being 0.10, against 5.68 inches, for the same period last year. A very cold month, with brilliant sunshine most of the time, but with sharp frosts every night. The snow has not disappeared from the ground since the 29th of December. The wind has been from the east for fourteen days, and from the south-east twelve days.—W. MABBOTT, *Gwerllwyn House, Dowlais, Glam.*

— **METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, FOR FEBRUARY.**—Mean temperature of month, 28.1°. Maximum on the 23rd, 47°; minimum on the 8th, —4.0°. Maximum in the sun on the 27th, 103.8°; minimum on the grass on the 8th, —8.9°. Mean temperature of the air at 9 A.M., 26.5°. Mean temperature of the soil at 1 foot deep, 33°. Nights below 32° in shade, twenty-four; on grass, twenty-eight. Total sunshine, seventy-four hours, or 27 per cent. of possible duration; seven sunless days. Total rainfall, 0.13 inch; rain fell on eight days. Approximate averages for February:—Mean temperature, 39.5°; sunshine, fifty-six hours; rainfall, 1.58 inch. The coldest month for at least twenty years, and the driest with the single exception of February, 1891. We have twice had a lower minimum temperature in the shade—viz., in December, 1879, and January, 1894, when it fell to —5.8° and —4.4° respectively. The only other month with a mean temperature below 30° was January, 1881, when it was 28.4°.—J. MALLENDER.

— **GERMINATING POWER OF SEEDS.**—Dr. A. Peter gives, in the *Nachrichten von der Koniglichen Gesellschaft der Wissenschaften zu Gottingen*, the results of a second series of cultural experiments with dormant seeds, taken from various depths in the soil of woodlands or forest. The forest in question of the present day is the site of villages and cultivation that disappeared several centuries ago; and some of the samples were taken from dense forest, 100 to 150 years old, under the shade of which there has been no surface vegetation for years. The principal point to investigate was the probable existence of seeds of cornfield weeds still possessing the power of germinating and developing into reproductive plants. Dr. Peters succeeded in raising a large number of plants belonging to about fifty different species, including some that are essentially weeds of cultivation; and he believes he has good grounds for supposing that the buried seeds of many pasture plants and cornfield weeds retain the vitality much more than half a century; that is, under the conditions he describes.

— **PRIMULA BLOOMS.**—Just as we are going to press a few specimen Primula blooms reached us from Messrs. B. S. Williams and Son, Upper Holloway, London. These were evidently fine when dispatched, but arrived in a shrivelled condition, which deprived them of much of their beauty.

— **SULPHUR FOR ONIONS.**—For the benefit of persons who are unable to raise a good crop of Onions on account of the grub, I can offer a very good recipe, and it is as follows:—When the Onion bed is prepared and the drills made ready for sowing sprinkle a good pinch of flowers of sulphur in each drill from end to end, or if it is desirable to sow the Onions broadcast, sow the sulphur the same way, and dig it in. This will produce a sure crop of Onions, and no grub will trouble them.—T. F.

— **COLONIAL FRUITS.**—Up to the close of last week three steamships had arrived here from the Cape, fruit-laden, and in a short time the first fruits of the colonial supply were dispersed, a large quantity finding its way to the stalls of the hucksters. This latter fact indicates either an over-supply or inferior quality; unfortunately, both facts are required in explanation, and we regret, says a contemporary, to think that fruit shippers at the Cape have again learnt the lesson that not anything or everything will find profitable customers in London at this time of year.

— **SCARCITY OF PARSLEY.**—The most suitable places I have found for growing it to stand the winter has been odd corners under trees or hedge bottoms. Last season, having lost nearly all that was not in boxes and covered, more from damp than frost, I was obliged with a supply by a cottager, who had a fine lot growing under a Yew tree. Having cut about 6 feet of rough Yew hedge, planted on a mound of very rough material, and full of roots, I grubbed the surface, and gave it some potting-shed refuse, then sowed half with Parsley, and planted the other half. It did not grow very much and had to struggle amongst the weeds. The Parsley has, however, stood the winter all right, and there are several small leaves now, and with a change to genial weather there will soon be abundance for gathering. In many gardens there are corners where Parsley might be grown in out of the way places.—M. J.

— **THE WEATHER IN FEBRUARY.**—The first eighteen days of February were cold, and the eighth day of the month remarkably so, the minimum temperature on a Glaisher's screen read —3° (three below zero), and on the grass —8°. This was worse than occurred during the winter of 1860-61, when the minimum temperatures here were —1° on the stand, and —5° on the grass on December 25th. Fortunately the ground was covered with 4 inches of snow during the severest frosts this year, and many low growing plants have escaped serious injury. The frost penetrated the ground 8 inches, and a heap of soil 18 inches; the ice on the lake was 8½ inches in thickness. The wind was in a northerly direction eighteen days. Total rainfall 0.31 inch, which fell on seven days, the greatest daily fall being 0.14 inch on 24th. Barometer—highest 30.324 at 9 P.M. on the 16th; lowest 29.460 at 9 P.M. on 26th. Thermometer—highest in shade 45° on 28th; lowest —3° on 8th. Mean of daily maxima, 34.53°; mean of daily minima, 20.00°. Mean temperature of the month, 27.26°; lowest on grass —8° on 8th; highest in sun, 99° on the 27th. Mean temperature of the earth at 3 feet deep, 35.17°. Total sunshine, 106 hours twenty minutes. There were six sunless days.—W. H. DIVERS, *Belvoir Castle Gardens, Grantham.*

— **SPRAYING PLANTS.**—Spraying plants with clear water is of such benefit to them, that it is strange people in general do not practise it more. There are several kinds of implements to use for the purpose, any of which will do the work well. The value of spraying cannot be over-estimated; it tempers the atmosphere around the plants and washes the dust from them, leaving the breathing pores free to act, and prevents the ravages of red spider. Some years ago, when I had no sprinkler and had never heard of one, I used a whisk broom dipped in water to sprinkle my plants, and it answered the purpose very well. Some plants do not like water on their leaves, and they can be moved out of reach of it. None of them like it when the sun is shining hot on the foliage, but in the early morning or evening they enjoy it. The value of moisture around Chinese Primroses, says a writer in an American contemporary, is seldom fully understood. They dislike it on their foliage, but when the pots are sunk into wet sand the moisture causes them to grow rank and healthy, and they never have that dried-up forsaken look that we see when moisture is lacking. To sum it all up, the rule to follow in spraying is to spray as often as you think the plants need it, and then, to be sure they have enough moisture, spray a little more.

— THE CHISLEHURST GARDENERS' ASSOCIATION.—The members of the above Association spent a most enjoyable and instructive evening on Tuesday last, when Mr. J. Martin, from Messrs. Sutton & Sons, gave a lecture on "Cyclamens as Grown at Reading." There was a full attendance, and great interest was manifested by the members, some of whom are Cyclamen growers, but after Tuesday's lecture it will be safe to predict that a greater impetus will be given to the culture of Cyclamens in the Chislehurst district. A number of Cyclamens in pots were exhibited, and also cut blooms of Cyclamens and Primulas from the Reading collection.—R. F.

— SUTTON'S EARLIEST OF ALL RADISH.—This small Olive-shaped variety would seem to be correctly named, judging from our experience during the past severe weather. In a slightly heated pit we were able to commence pulling in a month from the time of sowing, and doubtless should have been even sooner than this had the weather been more genial. Being very quick in growth, it is of necessity mild in flavour, and particularly suited on account of its small size for the salad bowl. Its leaf growth is so short that it is not easy to tie them in bunches—that is, when freely exposed to light, and not too thickly sown. For small frames or pits it is particularly adapted, because so many can be had from a small space on account of its compact growth, allowing thicker sowing than is possible with larger varieties.—S.

— APPEAL JUDGES.—I had no intention of referring to this subject again, but I see that "C. K." (page 169) impeaches a Society, of which I presume he is a member, with dishonourable practices. This Society selects for judges gentlemen of such admitted competency, probity, and standing in the horticultural world as Mr. Temple of Carron House, Mr. Murray of Parkhall, Mr. Brown of Abercairney, or Mr. McConnachie of Cameron House. If the Society referred to by your correspondent had been guilty of the malpractices stated by him, it would have ceased to exist long ago, whereas it is in its eighty-third year, and was never more flourishing than it is at the present time.—G. McDougall, *Stirling*. [Our correspondent sends us the regulations of the Society to which he refers, and we consider them very good; we also regard the judges named as beyond reproach. No useful purpose can be served by prolonging this discussion.]

— BOTANIC STATION AT ABURI ON THE GOLD COAST.—A few interesting facts referring to the establishment and present condition of this station are given in the "Kew Bulletin" for January, from which the following information has been gathered. The site is in the hills, at an elevation of about 1400 feet, overlooking the sea-board, near Accra and Pram Pram. In addition to its suitability for the growth of economic plants, Aburi is a valuable resort for European invalids. The locality has been greatly improved of late years, and it promises to become the centre of activity for many cultural industries started by the botanic station. During the winter of 1893-94 Mr. William Crowther, the Curator (appointed in 1890), was deputed to visit the West Indies "to observe the system pursued there in the cultivation of economic plants, and to bring back such useful seeds and plants as might with advantage be introduced to the Gold Coast." Mr. Crowther very successfully carried out the object of his mission, and published a detailed report. Since then the work of the Aburi station has made excellent progress. The inception, as well as the actual work, so far accomplished in botanical enterprise at the Gold Coast is entirely due to the Governor, Sir W. B. Griffith. He has given warm and consistent support to the station, and personally encouraged in every way the efforts of the Curator.

— VEITCH'S SUPERB EARLY DWARF BEAN.—For forcing under glass this is a decidedly superior variety, and one that as it becomes better known will take a foremost position. It is unusually dwarf in habit of growth, free bearing, and very quick in arriving at a matured stage. In a good forcing temperature pods are ready for gathering in slightly less than five weeks from the time of sowing, which is a gain over most varieties of dwarf Beans, and in cases where glass space is limited it has an additional recommendation in its dwarf sturdy growth. With such a general scarcity of vegetables outdoors some effort will be necessary to forward summer crops by sowing in boxes or pots for planting as soon as it is safe to do so on sheltered borders, and a variety possessing the quality of maturing only a few days in advance of older standard sorts must be a welcome addition. French Beans can be considerably hastened forward in pod-bearing by sowing in small pots and allowing them to advance steadily under glass until it is safe to plant them out in April; but some means of shelter must be devised as a safeguard against frost, which last year did such irreparable damage

among these as well as other tender crops. If hand-lights are not available Yew boughs form a capital protection from the dense nature of the foliage. Spruce is also valuable for the same purpose; both inserted around and among the plants at night and removed during bright, warm days will be a valuable help in getting a forward crop.—S., *Rood Ashton*.

— PLANTS FOR THE BACK WALLS OF VINERIES.—The best plants for this purpose is an interesting query. I have tried several in my vinery, among the rest *Plumbago capensis* for cutting purposes, and *Heliotrope* for its scent. The latter remains, but the former, owing to its tendency to nurse mealy bug, I had to remove. On the whole I have had greatest value from three Tea Roses planted out—viz., *Ethel Brownlow*, *Lady Castlereagh*, and *Mrs. James Wilson* (Dickson's), pedigree Roses, all different. I had Roses on these at Christmas, and I have Roses now, and except a little pruning and liquid manure they give no trouble. *Maréchal Niel* on another wall first cankered and then died. The shade of the Vine foliage only brings out more perfectly the glorious tint of these perennial blooming Roses. I commend them to your correspondent, page 178.—W. J. MURPHY, *Clonmel*.

— EXTRAORDINARY FROST.—Abstract of climatological observations at Driffield, February, 1895 (authorised station of the Royal Meteorological Society). Lat., 54° 0' 30" N.; long., 0° 27' 15" W.; alt., 76 feet. Mean barometric pressure at 9 A.M. (at 32° and sea level), 30.067 inches. Highest, 30.53 on 16th; lowest, 29.70 on 11th and 27th. Mean temperature at 9 A.M. (corrected), 30.00. Wet bulb, 29.00. Mean maximum, 35.3; mean minimum, 23.0. Highest, 43.8 on 28th; lowest, -1.0° on 8th (= 33° of frost). Mean of maxima and minima, 29.1°. Mean range, 12.1°. Mean radiation temperature on grass, 17.0°; lowest, -10.0° on 8th (= 42° of frost). Rainfall, 0.64 inch. Number of rainy days, thirteen. Greatest amount in one day, 0.12 on 27th. Instruments by Negretti & Zambra. Barometer, Kew Standard, No. 1860 (verified November, 1890).—W. E. LOVEL, *Observer, York Road, Driffield*.

— MAKING GOOD LOSSES.—One of our leading vegetable growers wrote me the other day that practically everything in vegetables outdoors was killed, and he was now engaged in doing his best to push on Cabbage and Cauliflower seedlings for early cutting, also raising dwarf early Peas in pots for planting out later, sowing more French Beans than usual for inside fruiting, getting up early Potatoes in frames and in pots, pushing on Lettuces and sowing for succession, and taking other means to secure as good a supply of vegetables as possible at the earliest moment. Then happily there is at disposal a good supply of Asparagus and Seakale for forcing, and Mushrooms are plentiful. Thus it is that the gardener, who must never be discouraged by adversities, does his best to rise above or to surmount them. Probably only British gardeners would be at once so energetic and thoughtful. Their work is practically one long battle with difficulties, which Nature seems just as freely to furnish as she does encouragement.—D.

— WEIGHTS AND MEASURES.—The Select Committee of the House of Commons appointed to inquire into the existing systems of weights and measures in this country had a meeting on Tuesday, February 26th, under the presidency of Sir Henry Roscoe. Evidence was given by Mr. H. J. Chaney, Superintendent of the Standards Department of the Board of Trade, who described the system under which the verification of legal standards is carried on at the Board of Trade by experts appointed for the purpose, and also gave an account of the different systems of weights and measures now in use in the United Kingdom. He stated that the Imperial and the metric systems were the only ones with which the Department had to do in England, but there were other local customary weights and measures in use. There were many weights and measures in use which were not legally recognised. Among these he mentioned the carat, the boll (used in Scotland), the ell, the coomb (used for measuring corn), the Winchester bushel, the butchers' stone of 8 lbs., the miners' dish (used for weighing ore in Derbyshire), and the gauge (used in measuring plates) as examples of weights and measures which were not recognised by law. A number of anomalies which formerly existed—e.g., a ton of stone being different from a ton of other materials, &c.—had disappeared to a great extent under the operation of the Weights and Measures Acts of 1878 and 1889. The Scotch and Irish mile were still locally recognised, but for all statutory purposes a mile was 1760 yards. Practically the only two countries of any importance in Europe in which the metric system was not adopted were Great Britain and Russia. In Germany, Austria, France, Italy, Spain and Portugal the metric system was the only system in use.—("Nature.")

— **ROSES AT CHICAGO.**—Flower-raising about Chicago has reached enormous proportions. It is estimated that there are in and about that city 2,500,000 square feet of glass, and that most of it is devoted to the raising of Roses and Carnations. No wonder Roses are to be seen everywhere on the streets, and even offered from door to door. Florists are advised to direct their attention to a greater variety of plants, and it is suggested that as much is to be made by raising other kinds, and thus the market may be saved.

— **DEUTZIA PARSIFLORA.**—This genus of slender-branched and graceful shrubs, on account of the hardihood, fine habit, luxuriant foliage, and attractive flowers, which are produced in profusion, is, says a writer in a transatlantic contemporary, deservedly the most popular of flowering shrubs. *D. gracilis*, in addition to its beauty and usefulness as a hardy shrub, is one of the most valuable plants for forcing, being potted and placed in a warm position about six weeks before the flowers are desired. *D. parsiflora* is a new small-leaved species, as its name implies. It is a fine novelty. The branches are straight, leaves lance-shaped and dark green. The shrub, which grows to the height of 4 feet, is profusely covered with beautiful white flowers in June. The ease with which this shrub can be grown has led many enthusiastic horticulturists to secure each new addition as it appears.—J. W. A.

— **SEAKALE.**—Probably never at any time has the value of this most useful vegetable been more appreciated than now. I was much surprised to read the other day the advice of a gardener, which was to continue to plant and blanch on the old outdoor lines. It would be interesting to learn how far, even with heavy coatings of manure, forcing or even blanching proceeded during the late intensely severe weather. How different was the case of the gardener who, having raised several thousands of stout roots from root cuttings, had them all so laid in and protected that he could get access to them at any moment, and thus be having a few hundreds, furnishing an abundant supply of well blanched stout heads all through the winter. Seakale is just now to any gardener who sees his outdoor green crops devastated, invaluable. It helps to keep him going in a wonderful way. I anticipate as one result of the destruction seen everywhere, that gardeners will, more than ever, provide every year for a large stock of Seakale roots.—A. D.

— **WAKEFIELD PAXTON SOCIETY.**—There was an unusually large attendance of the members of this Society at the last meeting. Mr. W. Tunnicliffe, The Poplars, Thornes, was in the chair, and Mr. J. G. Brown, of Outwood, filled the vice-chair. The lecturer was the Rev. L. S. Calvert, M.A., of Batley, and he gave a lengthy, interesting, and amusing description of an eight days' climb over some of the Swiss mountains last year. The lecture was illustrated by a large number of very beautiful photographic slides belonging to Mr. Calvert, who gave a somewhat similar lecture to the Paxtonians last year. Between twenty and thirty of the slides were quite new, and were exhibited for the first time last Saturday night. The views were shown on the Society's large screen, which is permanently fixed in their lecture room, by Mr. Harold Parkin, whose clever manipulation of the lantern and carefully focussing of the slides enabled the large audience to see the pictures to the best advantage. Dr. Clark of the Yorkshire College said it had certainly been a great privilege to him to be present that evening, because in his opinion there was no sport comparable with mountain climbing.

— **EARLY MILAN TURNIPS.**—There is yet no other variety that comes in so quickly as this, unless it be the new Early White Milan offered by Messrs. Sutton & Sons this year. It is not everyone who can devote glass protection to the earliest Turnip crop, but those who can will find them doubly valuable this season. Where this cannot be done a warm spot outdoors should be selected, the soil made light and rich to encourage a rapid growth being made, and seeds sown as soon as the frost has left the soil, and the surface becomes sufficiently dry and warm. The earlier now they are sown in small quantity the better, considering how scarce these as well as other vegetables will be in early summer. Last year we were able to pull from outdoors on a south border by the time the frame-sown ones were gone, which was very early in May, the seeds being sown the first week in March. These may with some advantage be disposed between the rows of Peas, so that they derive shelter from these and the stakes used for their support. The latter should not be crowded too thickly together, or the Turnips instead of bulbing quickly will develop leaves and stalks at the expense of root, and thus valuable time and crop will be lost, or greatly retarded for want of air and sun. There is a general tendency to crowd it as much as possible in sheltered borders, these seldom being available beyond a limited extent, but it is more prudent to under rather than

overstep the mark at this season. Successional sowing will be better on a cooler site, and the Early Milan, although the best early variety is not recommended for summer use.—W. S.

— **TREMANDRA HUGELI.**—This is a dwarf bushy plant, usually not more than 1 foot in height, with numerous narrow and pointed leaves not more than half an inch long, and covered with short hairs. The flowers are produced from the axils of the leaves near the point of each shoot. They are nodding, upwards of 1 inch across if fully spread out, and of a pale, but bright purple colour. The petals are four in number, obovate, and, on account of their opening to only about half the full extent, render the flower somewhat campanulate. According to a contemporary this plant does not appear to be very well known, although considerable numbers have during the last few years been grown in one at least of the large London nurseries. It is just now coming into bloom, and its bright flowers and neat compact habit make it one of the prettiest of small greenhouse plants.

— **SHIRLEY AND DISTRICT GARDENERS' AND AMATEURS' IMPROVEMENT ASSOCIATION.**—An extra meeting was held at the Parish Room, St. Deny's, Southampton, kindly lent by the vicar, on Thursday last, Mr. B. Ladhams, F.R.H.S., presiding over a fair attendance of the members. Mr. J. Amys, The Gardens, Hamble Cliff, gave an interesting and instructive lecture on "Rotations of Crops for Cottage Gardens and Allotments." Mr. Amys said that a cottager obtained three advantages by close attention to his garden or allotment—health, pleasure, and profit. He gave a detailed account of the work necessary, and suitable crops for a cottager to grow, recommending in December a résumé of the year's work with a view to noting failures and successes, which would be valuable experience to work upon the next year. An interesting discussion ensued on various points of culture, one being the desirability or otherwise of sowing Broad Beans and Peas in the autumn. A hearty vote of thanks was accorded to the lecturer.

— **AZALEA LINEARIFOLIA.**—This curious species differs from all other Azaleas in almost every character but that of floral structure. It forms a flat-headed bush 3 to 4 feet high, each branch being terminated by a tuft of narrow light green leaves, which are densely covered with hairs. The specific name is very appropriate, as the leaves, which vary from 1½ inch to 3 inches in length, are not more than one-eighth of an inch wide at the broadest part, and taper to a point. The flower is composed of five narrow petals, similar in shape to the leaves, each one being 1½ inch long and of a light rosy purple. This Azalea, which is a native of Japan, will, says a contemporary, grow out of doors if planted in sandy peat and given a moist and sheltered position. In the cool greenhouse it grows well, and during February and March produces its flowers in abundance. Except for those, however, who like to have curious as well as beautiful plants in their greenhouses, it is scarcely showy enough to gain an entry there, but outside it makes an interesting and pretty bush, and is certainly worth cultivating.

— **CHESTNUT WEEVILS.**—These insects injure the nuts of the Paragon and Numbo varieties of Chestnut as well as the wild Chestnuts, according to a writer in the *American Cultivator*. The weevil is of a yellowish colour, and about the size of a common Pea weevil. The grub is white or cream coloured. The female beetle lays her eggs when the trees are in blossom, and in a few days the young grubs hatch. The shell of the Chestnut forms and hardens around the insects, and after eating most of the meat up inside, the worm bores its way out and escapes. These holes in the Chestnuts are never made by worms entering, but always by those that have escaped. One female beetle lays a great number of eggs in one season. The grubs after leaving the nuts go into the ground and produce winged beetles for the next summer. In seasons when they are scarce they have probably been killed by the severity of the previous winter. The Chestnuts should be gathered as early as possible, and stored in very tight bins or boxes where the worms cannot escape. Then fumigate them with carbon bisulphide. Eight ounces of this will do the work. After fumigating expose the nuts to the air and sunshine until they are thoroughly dried, and no harm will be done to them. It is quite essential that some such method should be adopted to destroy these creatures if Chestnut growing is going to prove profitable.

— **THE CHARLES COLLINS FUND.**—We acknowledge with thanks 2s. 6d. each from Messrs. William Kilgour, George Picker, and "R. J." Any other friends who may desire to contribute should do so during the ensuing week, as the Fund is about being closed by the Committee.

VINES AT LONGLEAT.

CRITIQUE BY THE AUTHOR.

It is thirteen years since my treatise on "Vines at Longleat" was published in the *Journal of Horticulture*, and eleven years, I think, since the last copy in pamphlet form was sold. Still there are frequent inquiries for it. I have hesitated to republish it for the reason that some of the practices therein detailed are, as far as I am concerned, obsolete. But a thought has struck me that I might, by giving summaries of the principal chapters, criticise them by the light of recent experience, state where my ideas and practices now differ from those therein expressed, enlarge on such parts of the subject as may seem necessary, and thus take my readers with me up to the present time.

There is first of all given a description of the vinery, which is a span running north and south, 216 by 30 feet, divided into three compartments, 60, 75, and 80 feet respectively. Ventilation is secured by the upright sashes, 2 feet 9 inches deep, along each side, worked by levers, and a 6-foot wide lantern on the top, with upright sashes 2 feet deep worked in the same way. I am not sure, even after a quarter of a century's further experience, that I could improve on the general design of this house for its situation and the purpose for which it was intended, except it might be to make the roof less steep.

One of the buildings I now have charge of is similar in shape, with the exception of the lantern roof. This mode of ventilation has many advantages, but it adds considerably to the cost of building. Our latest erected vineries being on the side of a hill sloping to the south-west are built to fit the ground without much excavating. They are terraced inside—i.e., the front border is on one level, the path another, and the back border some 3 feet higher, still sustained by a brick wall on one side of the path. The roof is an unequal span. That of the largest house has a 28-foot rafter on the front side, and the back rafter is about 17 feet 6 inches. Ventilation is afforded by lights opening on both sides of the ridge, and shutters at front and back close to the ground. The front shutters are 1 foot deep only, and the back ones 2 feet. The houses are all glazed on a principle invented and patented by Mr. Alderman Chaffin, and who, in fact, has built them all himself, with the exception of the first, which was done by contract.

The plan of the glazing is thus. The rafter is rebated in much the same way as for putty glazing, leaving the top $1\frac{1}{2}$ inch wide; a strip of felt the same width is tacked on to this, and also another strip on to the next rafter in the same way. The lower pane of glass is laid on, and allowed to project over the outside of the wall plate an inch. Then another strip of felt the same width as the first is laid over the edges of the glass, and finally a length of galvanised hoop iron $1\frac{1}{2}$ inch wide, turned at the lower end (to hold the pane from slipping) and reaching to within half an inch of the top of the pane. This half inch allows the lap for the next pane, and the end of the hoop iron, which is fastened to the rafter by galvanised screws, holds the second pane in position. The rafters are 20 inches from centre to centre, and the glass is half an inch less, thus leaving space for the screws between the two panes. This style of glazing answers well since we have prepared the iron ourselves and taken more pains to do them correctly than tradesmen could be persuaded to do. There is very little outside painting, and the glazing can be done by a handy labourer in almost any weather.

Our first built vinery is rather flatter than the Longleat one, which, I think, has an angle of about 35° ; our flattest roof rises 1 in $2\frac{1}{4}$, which is slightly less than 24° . In the house with the steeper roof Black Hamburgh does not colour satisfactorily; in the flattest one it coloured last year as black as sloes, but this is a comparatively new house, built in 1891, and it is, therefore, too early to speak positively on this point. But is it not a fact that Black Hamburghs as a rule do not colour in our modern light houses? We never see the colour and finish on them as used to be seen on those shown by Mr. Henderson of Coleorton some twenty-five or thirty years ago. I know this gentleman used to point to his dilapidated roof, and say that the abundance of air passing through it was the secret of his success, but I have my doubts on that point. I believe some of our modern vineries have quite a sufficiency of ventilation, but owing to the smaller amount of woodwork and the large panes of more transparent glass with comparatively few laps, the sun acts more quickly on them, especially if the roof is at all steep, and the fluctuations of temperature are much more rapid. I attribute the want of colour in a great measure to this. Make the roof flatter, and there is a marked difference in the variations of temperature and consequently in the other conditions of the atmosphere. If a house is to be glazed well I know of no necessity for a steep roof, so long as it is sufficiently steep to carry off the water, unless it may be for early forcing.

I met some time ago an old friend, Mr. Shore, who is now gardener at Berkeley Castle, and called to mind the beautiful Black Hamburghs he used to grow in a little house near Bristol. "Yes," he says, "and now I cannot grow Black Hamburghs at all." I do not suppose it is quite so bad as that, but evidently he cannot grow them to his own satisfaction, and it would be interesting to know whether the houses are likely to be the cause, or it may be that his multitudinous duties in a large establishment prevent him attending personally to them. The largest Hamburgh berries I have seen—and I believe they were as large as the "Colmans" we now grow—were produced in a house with an eastern aspect adjoining Mr. Meredith's dwelling house at the Garston Vineyard, but they were never quite black. One Vine hanging over a

cistern at the north end was, I believe, the only Vine in this house which produced exhibition Grapes. These were nearly black, but not quite. I remember one particularly good bunch in 1868, weighing something over 8 lbs., being cut and placed on the exhibition board, but many of the others in the house were very red. This house had a rather steep roof, and as soon as the sun rose above the horizon it was shining on it. I have had to run out many a time with trousers and boots only to admit air, as Mr. Meredith was very particular on this point. I still think he was right, but where I am situated now the aspect of the house is different, and there is seldom any need to open the ventilators before six o'clock in the morning. It was not so at Longleat. While the Vines were young they grew vigorously, the leading shoots of Alicante especially being stout and sappy. We could seldom get through a season without some of these shoots, or at least some of the leaves, being caught, although it was the practice to give air very early.

An incident which has only lately come to my knowledge will show how particular we were on this point. A young man who had been employed on the railway came to work for me, and as I found he would always do exactly as I told him, taking it for granted that I never told him wrong, I came to the conclusion that he was the man to look after the vinery, and I never regretted it. I found him a good learner, as he had nothing to unlearn, which is always the difficult point with young men. He has since filled one or two important places as head gardener, and is now acting in that capacity for a nobleman. He lived in the village some little distance from the garden, and one morning remained in bed a little too late. He slipped into his trousers and boots as quickly as possible, and started running with his other garments on his arm. He was challenged on the road by two dogs, who knew him perfectly well when properly dressed but were not willing to allow him to go by in that condition. What was he to do? He says, "I knew that if either the governor or the sun got there before I did there would be something wrong." He therefore threw one of his garments to the dogs to amuse them, and ran on, arriving at the vinery just in time. This would probably be as early as 5 o'clock, or perhaps 4.30 A.M. Of course there are many persons who would not require a house so large as those I have mentioned, and where there are already walls it might be advisable to build lean-to roofs against them; but it should be remembered that large houses, especially those with flat roofs, are proportionately cheaper to build than small ones, and they are no more trouble and very little more expense to manage.—WM. TAYLOR.

PENTAS CARNEA.

A "CONSTANT READER" writes desiring information about a plant, of which he encloses an excellent truss of flowers. He has not previously seen it, and supposes that it is not very largely grown. It is the good old *Pentas carnea* (fig. 38), and flowers during the spring and summer, but does not appear to be so extensively grown as it used to be. It is an evergreen, and will flower freely in an ordinary greenhouse during the early summer months, although it is usually grown in stoves. The flowers are of a pretty pink shade. During the winter the plants should be kept in a temperature of about 50° to 55° . If necessary, propagation can be effected by inserting cuttings of young shoots in a sandy compost in the spring, plunging the pots in a hotbed or propagator. Plants raised thus and grown on will flower towards the end of the summer. A compost of fibrous peat, loam, and sand will be found suitable, and rather firm potting is advisable.

HERBACEOUS PHLOXES.

No family of plants among the herbaceous section more worthily deserves cultivation and a place in every garden than the perennial Phlox, but how often we see it mismanaged. There are two sections of the tall growing kinds—the early flowering varieties, *Phlox suffruticosa*, and the late flowering kinds, *Phlox decussata*. The early flowering section bloom during July, the later through August. Of its thorough hardiness there cannot be a moment's doubt, and it lasts for ever under fair treatment. The improvement in them during the last ten or twelve years has been great, and many new shades of colour have appeared amongst them.

By thinning out the shoots and liberal feeding, grand pyramidal trusses of flowers are obtained, and it is a mistake to allow the plants to grow on into large masses with an abundance of shoots, for the Phlox is a strong-growing plant forming a mass of roots which soon exhaust the soil. I prefer lifting them every three years, dividing the plants into pieces with from three to five growth buds, and planting them firmly in good soil, either in the early autumn or in the spring, keeping them well watered in dry weather to prevent the loss of foliage for one thing. When amateurs have a little gentle bottom heat at their command cuttings can be struck in the early spring, but the plan of dividing is much easier for them. As soon as the growth is about a foot in height a tie-up stick should be placed in position, and the shoots fastened to it to prevent injury from the action of the wind.

When Phloxes are grown for exhibition purposes to secure fine spikes and the flowers kept free from injury, a stick should be placed to

each shoot to secure it, and the plants kept mulched with a little decayed manure and kept watered in dry weather, and three spikes or rather growths to a plant is ample when extra fine blooms are wanted. The protection of the blooms in wet or windy weather is a puzzle to many

sunshine, and the canvas, and in fact sticks also, can be easily removed when not wanted.

It is unnecessary for me to give names of desirable varieties here, for they are so numerous that were I to give the names of a few good



FIG. 38.—PENTAS CARNEA.

how best to do so, but a very simple plan is to place three Dahlia stakes as a tripod, forming a cone over the flowers, and wrapping a piece of canvas securely around it for about half the distance from the top, thus allowing the free circulation of air, at the same time taking care the flowers are not bruised. This is also a protection from strong

ones, there are others quite as good. The best plan is to send to a florist who is celebrated for Phloxes, giving the names of varieties always grown by the intending purchaser, and leave the selection of a few first rate kinds to him. Or another good plan is to take notes of any that strike you at the blooming time, and order plants for the autumn.—W. D.



ROSE SHOW FIXTURES FOR 1895.

- June 27th (Thursday).—Gloucester (N.R.S.) and Canterbury.
 „ 28th (Friday).—Exeter.
 „ 29th (Saturday).—Windsor.
 July 2nd (Tuesday).—Sutton.
 „ 3rd (Wednesday).—Croydon, Ealing, and Farningham.
 „ 4th (Thursday).—Eltham and Norwich.
 „ 6th (Saturday).—Crystal Palace (N.R.S.).
 „ 9th (Tuesday).—Wolverhampton.*
 „ 10th (Wednesday).—Chelmsford and Hitchin.
 „ 11th (Thursday).—Helensburgh and Worksop.
 „ 17th (Wednesday).—Derby (N.R.S.).
 „ 18th (Thursday).—Halifax.
 „ 23rd (Tuesday).—Tibshelf.
 „ 24th (Wednesday).—Chesterfield.
 „ 25th (Thursday).—Trentham.

* A show lasting three days.

I shall be glad to receive the dates of other Rose shows than those named above for publication in future lists.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

EFFECTS OF THE FROST.

THE influence of the long-continued frost of last winter on gardens and rosarians has, in many places, been most disastrous. Mr. Cranston of Hereford writes me to say that a large number of his Hybrid Perpetuals, Noisettes, and Teas have been killed down to the snow-line. Only the stronger varieties have escaped. His Conifers and fruit trees are, fortunately, uninjured. The Messrs. Croll of Dundee, whose nurseries are at Broughty Ferry on the Firth of Tay, inform me that many of their finest Roses have been utterly destroyed. I much regret to learn this, as the Messrs. Croll are among the foremost of our Scottish rosarians, and have proved themselves of late years formidable rivals to the Messrs. Crocker of Aberdeen. We may take it for granted that the latter have also suffered much from the terrible frost. It would be interesting to know the experiences of the great English rosarians, such as Messrs. Paul of Waltham, Cant of Colchester, Prince of Oxford, Harkness of Bedale, Keynes & Co. of Salisbury, and Turner of Slough. Mr. George Paul's providential preservation of his Teas has already been recorded, in the last week's issue of the *Journal of Horticulture*. I hope that other cultivators have been equally fortunate.

Many of the Roses in my own garden have been slightly injured, but so far as I can learn not one of them destroyed. The Hybrid Perpetuals, the more vigorous Teas, and the Noisettes on the south wall, including two *Maréchal Niels*, are almost untouched. This, however, is not surprising, for my Rose trees are sheltered from every wind that blows. Even my Pansies and Violas exposed on open borders have escaped. On the other hand, I regret to say that at Logan House, in this parish, Mrs. McDouall's Roses have been so seriously affected that pruning this season will be almost superfluous, but the head gardener, Mr. McMicking, assures me that though the stems are much injured the plants are still alive, none of them having been wholly destroyed. Rhododendrons, Azaleas, and even Hollies at Logan have suffered so greatly as to be quite unrecognisable.—DAVID R. WILLIAMSON.

AN inspection of my Roses shows that on the south side of a wall of Teas and Noisettes climbing *Niphetos* and climbing *Perle des Jardins* are a total wreck, and even our old friend *Gloire de Dijon* has suffered. The least affected of all was *L'Idéal*, but much of the wood is of little use for the coming spring. On the north side of this wall are a few plants of *Maréchal Niel* and others which often give us a most acceptable crop of summer blooms. The plants here are much less affected than on the south or warmer side. In almost all cases where the sun had full play upon it the wood is totally killed. No doubt the extremely sudden changes have much to do with this, for it was sometimes like spring when sheltered and in the midday sun, followed by 10° to 25° at night. On a fence running due north and south the Roses were not quite so bad as on the wall running east and west; but here, also, there is sad havoc. A few plants of a sport which I valued considerably appear quite dead; but I have others under cover as well, for which I am heartily thankful.

Cut-backs from last season, and also many thoroughly established dwarfs, are severely injured where not quite killed. Maidens, too, are almost gone, and there will probably be some difficulty in meeting the large demand that is bound to come for spring planting to fill up gaps: Unfortunately, we had no snow worth naming, never more than a couple of inches. Some varieties are evidently more hardy than others. Horace Vernet in the H.P.'s is almost killed, while *L'Idéal* and others are fairly exempt in the Tea class. Many could be mentioned from the Teas that are terribly hard hit, while Paul Neron, Ulrich Brunner, Jules Margottin, and others in the H.P.'s are fairly safe. But, class for class, I fail to see any difference on the whole.

The most pleasing feature is the way that dormant buds, both of Teas and Hybrid Perpetuals, seem to have come through when upon dwarfs. More especially is this the case when upon the Briar and De la Grifferaie stocks. On half-standards and other hedge Briars I fear there will be sad blanks. On our dwarf stocks of Manetti the buds do not look quite so happy, and doubtless this is because of the less hardiness of the foster roots. There will not be much pruning to do after our Roses have been cleared of dead wood.

When shall we have another really good Rose year? 1893 was bad; 1894 promised well, but turned out a fraud on account of the sharp May frost. Then, although we secured good growth in the autumn, and managed to get it well ripened, the recent winter has again precluded what might possibly have been a good Rose season; for, no matter how kind the weather may be from now, we shall scarcely see the wealth of early summer Roses fairly promised by last autumn's growth.—PRACTICE.

NOTES ON SNOWDROPS.

GALANTHUS NIVALIS REDOUTEI.

THE Snowdrop grown in gardens under the name of *G. Redoutei* is, in reality, *G. latifolius* of Ruprecht, and quite distinct from the plant named at Kew *G. n. Redoutei*. In the autumn of 1892 I received a few bulbs as *G. Elwesi*. These flowered very early in 1893, and I was considerably puzzled over them. They were unlike any *G. Elwesi* I had ever seen, but as one is always liable to fall into error, I sent one plant each to three of our best Snowdrop growers, none of whom knew what it was. I then sent one to Kew, and the authorities there kindly informed me that *G. nivalis Redoutei* was the name of the Snowdrop. This was a surprise, as *G. Redoutei* was rare, if not unknown, in our British gardens. One distinguishing feature of this Snowdrop is the character of the leaves, which present the appearance of a flat arch when at their full size. The flower, which is of good size, and of the same character as the ordinary *G. nivalis*, stands on a stout, erect stem, and from the low altitude above the soil of the leaves appears very conspicuous. The leaves are of a dull grey-green, and are rather corrugated on the under surface. The whole style of this Snowdrop is not unlike an enlarged form of one grown as *G. montanus*; the larger size appearing in flowers, stems, and leaves, the latter being lighter coloured than those of *G. montanus*. The flowers were in bloom about January 22nd last year. *G. n. Redoutei* is understood to be a native of the Caucasus.

G. PERRYI.

Through the kindness of one of my flower-loving friends I received this Snowdrop in flower two years ago. It was accompanied by a remark which hardly gave me a favourable impression of its merits. This was, that although it was apparently a good grower it did not appear to be of great value otherwise. With every desire to agree with my friend, I am compelled to express my admiration for this little Snowdrop which, while certainly small in size, is extremely beautiful. Its first appearance is a little curious to those unacquainted with the habits of some others of the genus, the flower-scape rising to a considerable height for the size of the plant before the broad, short leaves, unfold themselves. The scapes are bright green, and the flowers, while small, are of fine form, and hang in a most graceful way from the erect scapes. The markings of the flowers are like those of our common Snowdrop. The leaves are about five-eighths of an inch broad, and of a glaucous green. If I am not misinformed *G. Perryi* is from the Caucasus.

G. MONTANUS.

In writing of *G. nivalis Redoutei* I have mentioned this, which is a doubtfully named plant, as some say *G. montanus* is the same as *G. latifolius*. The flower is like that of *G. nivalis*, and the leaves have the arching character referred to in the note on *G. n. Redoutei*, but are a bluer green, narrower and shorter. Being still a little uncertain of the name I only write this to guard against it being supposed that in referring to *G. montanus* I am speaking of *G. latifolius*, with its broad, shining green leaves.

G. IKARIAE.

This new Snowdrop, for which we are indebted to Mr. E. Whittall of Smyrna, is causing some curiosity among admirers of the *Galanthus* in its various forms. It has been named and described by Mr. J. G. Baker from two half-dried specimens sent by Mr. Whittall. Through the kindness of a friend I received some bulbs, only one of which flowered last year. It has the shining green leaves of *G. latifolius*, though they vary in form, some having the strap shape of those described by Mr. Baker. The outer segments are rather less than an inch long, and the inner ones about half the length. The latter forms a pretty, bell-shaped cup, with a conspicuous bright green, apical blotch of large size, occupying about a half of the outside of the segments.

The constitution of *G. Ikaria* remains to be proved, but one report which has reached me regarding bulbs procured in 1892 is not very favourable. It is to be hoped, however, that we may be able to establish it in our gardens. The habitat of this plant is in the Island of Nikaria, which lies a short distance S.W. of Samos, off the West Coast of Asia Minor. It will be observed that the spelling of the name is *Ikariae*, suppressing the initial letter N in the name of the island, and following the classical spelling of *Ikaria* or *Icaria*. It is to be feared this will lead to some confusion, and that the plant will occasionally be found under the name of *G. Nikariae*.

G. MAGNET.

Were any argument needed to disarm those who object to the improvement of the Snowdrop, a powerful one would be supplied by this fine flower—one of Mr. James Allen's seedlings. It is true it possesses one feature which causes one some debate as to whether it is an improvement or not; this is its tendency to produce two flowers on a fasciated stalk. We are familiar with more than one flower on the scape of a Snowflake, but this is a rare occurrence with a Snowdrop, although it occurs with an exceptional variety. I must confess to being in a strait between two opinions, these being whether to consider this an improvement or a defect in an otherwise very beautiful flower. The two flowers are not invariably but are commonly produced in this variety, and they are so large, of such good form, and of so much substance that G. Magnet must be considered a great acquisition. It is of the nivalis type, and the scapes and leaves are quite in proportion to the size of the flowers.

G. LUTESCENS.

This is one of what are known as the "Yellow Snowdrops," and which are so called, not from the colour of the flower, but from the markings which are usually green being yellow. The ovary is also a rich yellow, and the flower stalks assume a yellowish colour. The variety under notice was found about eighteen years ago in an old garden in Northumberland. It is very beautiful and very distinct, but is unfortunately small, delicate in constitution, and slow of increase. I have only had this variety for about three years, and it did not flower with me until last season. It is well worthy of a place in the choicest garden, and will be universally admired for its delicate beauty.

G. SHARLOKI.

This singular variety is interesting from the time it first appears through the soil. Not that all Snowdrops are not interesting, even in their earliest stages, protected as they are by their spathes from defilement as they pierce through the earth, but this one is particularly so from the spathe being divided. When it comes into view the divisions are separate, and look very curious as they advance, being like two small green horns. The singular appearance is then added to by the flowers, which, with the green markings on the outside of the outer segments, look at this stage like little white balls streaked with green. The flowers when at their full size are not so attractive, the green streaks giving them a dingy look, but, on the other hand, the twin spathes look very peculiar, and add to the interest of the flower. G. Sharloki is of the nivalis type, and was named by Professor Caspary of Koenigsberg in honour of its discoverer, Herr Julius Sharlok of Grandenz, who found it growing wild in some copses in the valley of the Nahe, a tributary of the Rhine. It is a very good grower, and flowers quite freely.—S. ARNOTT.

SPAWNING MUSHROOM BEDS.

THOUGH I do not consider myself an expert, I should very much like to give my experience on this subject. Like your first correspondent, who signs himself "Mushroom," I would be glad to gather from gardeners and growers of greater knowledge and longer practice than myself a clue to the causes of the partial failures that I have experienced.

The first Mushroom bed that I made was a very off-hand affair—two loads of long stable manure made into a flat bed about a foot in depth. This was spawned at once with spawn of my own making. Rough protection of old frame lights placed over it was afforded, and it was not soiled or cased in any way. This was in a shady north-east corner of a field. The Mushrooms came quickly, of good substance, and in patches or bunches a foot across. This bed was not made firm, but exactly as gardeners make up a little warmth for sowing tender annuals in the spring—in fact, part of the bed was used for that purpose. This bed was made in March, and came into bearing in about a month, and the crop continued until the heavy rains of July swamped it.

I have since read that useful work, Wright's "Mushrooms for the Million," and I now follow as closely as possible the routine that he advises, making my beds in the ridge form—in fact, I follow out all the instructions to the letter, and it is not too much to say that I have in one or two instances proved that his estimate of the produce per yard of bed can be realised sometimes. "J. W. K." (page 167) considers the beds can be made too hard. I have thought so myself, but in making a ridge Mr. Wright says, "If the ridge is made as it should be, you will not be able, in making the ventilation holes, to make them with a wooden stake, but an iron rod will be needed." I always require the iron for this purpose, and if beds can be too solid, then certainly I could never have realised 15s. per yard on a 90-feet ridge, the price per lb. averaging 9d.

I mention this fact merely to show that I hold the practice described in the little book to be sound, and I cannot think in my case hardness of material causes the condition of things I will now describe. I have found the beds to show well and come into bearing in about six or eight weeks, but the Mushrooms though sufficient in numbers are small, light, and flimsy; nor do I think the flavour so good as when larger and thicker. Where a cluster of six or more appears one Mushroom only takes the lead, and the others fade away; also I find that at the least touch they fall, whereas on strong beds it requires a good pull to gather them. The last and crowning misfortune in this category being, the beds last about six weeks instead of three months; I have had some last five months. I

am aware that some of my friends (gardeners) think beds lasting six weeks are not to be found fault with, but manure, labour, and rent are a great item, and unless you secure a full crop Mushrooms will not pay to grow.

I agree with "J. W. K." that good spawn is absolutely necessary, and my object in writing will have been gained if any one of your readers can tell how we can assure ourselves whether the spawn be good or inferior. This is one of the cases where the buyer must take the seller on his good faith and chance the results. To illustrate this point, an acquaintance of mine, a very smart gardener and a good Mushroom grower, once told me that he could not tell Mushroom spawn by its appearance, but he was very certain of its quality by the smell. I know that his smell misled him in the purchase of spawn, for we both dealt with the same producer. My friend had no Mushrooms at all, while I had crops which at least paid for my spawn and labour. I have thought that possibly there may be different varieties, some bearing culture better than others, and therefore I would not say a word that may be thought to be a reflection on the honesty of dealers in Mushroom spawn. I am a very old subscriber to the Journal, and I consider the present query by "Mushroom" to be as interesting as any now before your readers.—THOS. GARDNER, *North End, Hampstead.*

STOVE AND GREENHOUSE FLOWERING PLANTS.

[Extract from a Paper by Mr. J. LOCK.]

FOREMOST among the plants I purpose mentioning must be placed the hardwooded greenhouse species, which in beauty cannot be excelled by any others, not even excepting the numerous family of Orchids, with their many varied forms and rich hues of colour. That Cattleyas, Odontoglossums, Dendrobiums, and Cypripediums are all possessed of universal attractions I admit, and so, too, are Ericas, Apelexes, Phœnocomas, Hedaromas, Boronias, Pimeleas, and the elegantly beautiful Leschenaultia biloba major. A good plant of the last-named once seen will long be remembered, but unfortunately, along with the majority of the choice Cape and New Holland plants, the Leschenaultia in the form of large specimens is becoming more rare every year, and is now seldom seen at exhibitions.

It is much to be regretted that these old-time favourites are now pushed aside by more easily grown and freer-flowering, softwooded plants. True, we occasionally meet with a few wretched looking, stunted specimens, but much as I admire them when well grown, I frankly confess in such cases I would prefer their places being filled with Pelargoniums or similar plants, and the more valuable, but, when badly treated, less attractive Heaths consigned to the rubbish heap.

I shall confine my remarks on houses to very few words, as in the majority of cases gardeners have to accept and make the best of structures already existing, and many are the expedients resorted to, especially by exhibitors, to give their charges more congenial accommodation than the houses at their disposal readily furnish. Where new houses are being erected they should be span-roofed, and in every case have fairly large squares of glass and a correspondingly small amount of woodwork, so that light may be freely admitted. Even for shade-loving plants such structures are the best, for during bright weather they can be protected from the sun's rays, whereas nothing can remedy a deficiency of sunlight, and for at least five months of the year most of the plants we cultivate would be benefited by more light than our climate affords.

Ample means of ventilation should be provided, especially in greenhouses, for in genial weather it is hardly possible to admit air too freely, although cold currents rushing directly on the plants must be carefully avoided, draughts being at all times decidedly injurious. Greenhouses should have sashes on both sides made to open the whole length of the structure, also on both sides the ridge of the roof. The occupants of the stove do not require so much air at any time of the year, and ventilators in the roof are all that are needed. As the heat of the sun's rays increase it will be necessary to admit a little ventilation, but great care must be exercised in so doing, or the tender growths will be quickly injured thereby.

Very few greenhouse plants require shade, except perhaps to prolong or retard their season of blooming, but amongst those grown in stoves a large number are benefited by protection from hot sunshine. For supplying this nothing equals roller blinds worked by means of cords and pulleys, and so adjusted that they may be easily worked up and down. The material forming the blinds may be thick or thin, according to the requirements of the plants grown underneath.

I come now to what I consider the most important point in the cultivation of plants under glass—namely, the application of water to their roots. More plants are injured by an injudicious use of the water-pot than from any other cause. Some quickly show signs of distress if allowed to become too dry at the roots, but generally speaking, far more evil is done by a too liberal application of water, particularly to plants recently potted. In the case of stove plants, on which the syringe can be more freely used than on those in greenhouses, it is often advisable to withhold water from the roots for several days after repotting, provided the soil used is in proper condition with regard to moisture.

It is impossible to lay down any hard and fast rules for watering, as no two plants are likely to require precisely the same amount. I would strongly impress upon the minds of young gardeners that a thorough knowledge of this important point in plant culture is absolutely necessary, and consequently too much attention cannot be given it by

those who desire to become proficient. Study the requirements of the different plants, also the nature of the compost used in potting. Loam varies considerably in different localities, and it is to this I particularly allude. Sometimes loam is of so heavy and retentive a nature that the application of water necessary to maintain plants grown therein is little short of a fine art. Such soils should be allowed to reach a degree of dryness before giving water that in less retentive loam would be dangerous, if not fatal.

There are a few plants to which it may safely be said it is impossible to give too much water when growing freely, and foremost among those are the Anthuriums. When given a compost consisting of one-half peat fibre, with all the dust shaken out, one-half broken crocks and charcoal, with a surfacing of living sphagnum moss, and the pots partially filled with crocks, Anthuriums cannot be over-watered. The other extreme is found among the hardwooded greenhouse plants, which require more careful attention in this respect than any other species that I am acquainted with. If a Petunia or Pelargonium be allowed to flag through want of moisture, or, on the other hand, kept too wet for a time, although it may be injured it will recover; but subject a Hedera or Leschenaultia to similar treatment and it will not long survive. In the case of Heaths, the softwooded varieties, such as hyemalis and Eweriana, require to be watered with a freedom that would prove fatal in the case of the short-growing hardwooded varieties, of which æmula and Marnockiana are fair examples. In cultivating Primulas, especially the double varieties, which are mostly propagated from cuttings, there is often found a disposition to damp off at the collar. This is frequently attributed to an unsuitable position, or otherwise regarded as constitutional, but generally, I am convinced, the cause might be traced to defective watering.

HUMEA ELEGANS.

THIS handsome decorative plant, once so popular for flower garden and conservatory adornment, for some time almost fell out of cultivation, and was rarely seen in collections, where by its gracefulness it would have added much to make an elegant finish to floral arrangements. So scarce did this plant become that one season it was impossible to obtain seeds of it from the leading nurserymen. This was doubtless owing to the fact that unless it is managed with judicious care during the winter months it has a great tendency to turn yellow, and eventually wither and die. In many instances this is brought about by endeavouring to grow the plants in too large pots, and supplying them with a superabundance of water. During a long experience in Humea culture I have seen collections of well-grown plants, all in splendid condition when placed in their winter quarters, droop away one by one, and die till when the spring came round, only a few were left in a healthy state.

It was doubtless owing to such failures that many gardeners discontinued the culture of Humeas, and but for the tenacity of a few of their admirers they would have ceased to figure in the list of greenhouse plants. Recently Humeas have again increased in popularity, and now in many establishments are largely cultivated. Many growers make a great mistake in sowing the seeds too early. The plants then make too much growth during the current season, whereas it is much more beneficially made the following spring. By sowing seeds early, say in April or May, robust growth is made during the summer, and to keep the foliage green larger pots must be given as required, until by October the plants are from 12 to 18 inches in height. During the dull months that follow growth for a time ceases; the large pots are often only partially full of roots, so that by injudicious watering the soil becomes sour, and consequently the tender roots decay. This is quickly followed by loss of foliage, and if the plants survive, by the next summer, instead of being sturdy and clothed with bright green leaves to the pots, they are bare, and produce indifferent sprays of flower.

If the seeds are sown in June better results may be expected to follow. They should be sown thinly in shallow boxes or pans, scattering a little fine soil over them, and placing in a moist atmosphere where they can be shaded from the strong rays of the sun. Humea seeds are often a considerable time in germinating, but after the plants appear, and are large enough to be handled, they should be placed singly in small pots and kept in a medium temperature to encourage sturdy growth. Being ardent growers a further potting will soon be necessary, using a good compost of fibrous loam, leaf mould, and sand, with a little decayed manure. If placed in 6 or 7-inch pots late in the summer they will be in good condition to undergo the trials of the winter. Plants so treated do not make rapid growth, and are usually in good condition for the final shift in spring. They may be flowered in 9 or 10-inch pots, according to size of the plants, using moderately rich soil. A cool greenhouse temperature suits them admirably, an occasional fumigating being necessary to check the ravages of green fly. Another pest which attacks Humeas is a grub which eats away the leaves, as in the case of Marguerites. A strict watch must therefore be kept, and if any are noticed they should at once be destroyed by crushing between the thumb and finger, or if allowed to accumulate they will ruin the plants.

When the pots are full of roots, liquid manure aids the plants materially, and their long feathery spikes prove a great acquisition for conservatory decoration in the summer. Humeas are equally ornamental in the flower garden by plunging the pots in the beds, and staking to assist the plants to withstand the strong winds.—G. H. H.



THE CHRYSANTHEMUM YEAR BOOK.

MR. C. H. PAYNE is evidently reaping the customary reward of those who in a generous spirit try to perform onerous and responsible duties from their good nature. Why do not these critics of the Editor of the Year Book say in plain terms what they mean, and assert that Mr. Payne has been guilty of gross favouritism, for that seems to be the kind of imputation sought to be conveyed? Will any of these critics undertake either to edit the Year Book, getting for such labour scant acknowledgement, no pay, and no thanks, but plenty of kicks, or even to expend much time and some money to prepare articles and then receive absolutely no thanks whatever from the Society whose coffers the book is enriching? There is a fine field open here for the grumblers who are so numerous in the Chrysanthemum world, and whose human nature peeps out in the most unpleasant fashion.

The Committee, now that this body has been newly constituted, should show its confidence in their Editor by not merely voting this to him, but making a grant that would be even more expressive. After doing that perhaps the same body of gentlemen may next condescend to tender thanks to the various contributors for the good help they have rendered to the first issue of the Year Book. That has not been done yet—a mere oversight it may be assumed on the part of the executive of the N.C.S., and the act of courtesy will no doubt be soon performed. As a contributor who did his best for the Year Book I await the action of the executive with much interest.—A. DEAN.

RANUNCULUSES.

MANY years ago the Ranunculus was a very popular flower, and the varieties raised by the late Mr. Tyso of Wallingford, Berks, had a great reputation. Old florists, such as the late Mr. Richard Headly, grew fine collections of them, and the long bed at Stapleford, Cambridge, was a sight worth seeing at the blooming time. This plant is of easy culture when understood, and the blooms are so beautiful and so admirable for indoor decoration that I am induced to ask your readers to give attention to the Ranunculus as a hardy border plant, and with that view to give a few cultural instructions as practised many years ago by a very successful cultivator.

A bed was prepared early in the autumn where moderate drainage was provided, and well decayed manure free from worms and insects was dug in to the depth of 15 to 18 inches. The bed was levelled, and about 3 or 4 inches of finer soil placed on the top, a compost in which well-decayed leaf soil and a little sand were mixed, but a good strong loam suits them best. The surface was made moderately firm, and the small claw-shaped roots were pressed into the soil to the depth of 2 inches and then made firm. Planting of one bed was done in October or early in November, and another early in the spring; in fact, planting may be done as late as April.

Soil is not of such great importance to the Ranunculus as moisture and full exposure to the sun. Some persons plant under the impression that shade is best for them, but this is not so. The rows may be about 8 or 9 inches apart, with the roots 4 inches asunder in the rows, and during the growing and flowering season in dry weather an ample supply of water between the rows should be given night and morning, so as to secure abundance of moisture in the soil, the more of it, the better they like it. A mulching of cow or other decayed manure between the rows helps them materially.

After blooming, and the foliage has decayed, the roots should be lifted and kept in a dry place until planting-out time again. They can be purchased at such a cheap rate that no garden need be without some. There are scarlets, yellow, citron-coloured, carmine, and almost black, all of which can be bought at an average price of 3s. 6d. per 100. A beautiful white variety is dearer. Then there are larger flowered kinds, known as the Giant French varieties, which are very free bloomers and handsome, and these, I think, can be readily obtained at about 5s. per 100.—W. D.

THREE GOOD CLERODENDRONS.

ALTHOUGH Clerodendrons comprise a large number of separate species it is not my intention to dilate on each variety individually, for to do so would occupy more time and space than the limits of my paper will afford. I will therefore restrict myself to a few remarks pertaining to three of the best and most useful varieties only—viz., *C. Thomsonæ*, *C. splendens speciosissima*, and *C. fallax*. In habit and growth there are two distinct sections, one being of a climbing and the other of a shrubby nature. The first two both belong to the climbing varieties.

C. Thomsonæ, or *Balfourianum*, as it is more often called, on account of the brilliancy of its flowers, together with the great freedom with which they are produced, is undoubtedly the most widely cultivated. The flowers, which are disposed in large panicles, are of a beautiful bright crimson colour, with calyces of pure white, and when seen to perfection

cannot fail to impress a lasting effect on the memory. If grown in a large pot, and its cultivation carefully and assiduously attended to, few climbing plants can excel it for exhibition purposes. *C. splendens speciosissima* forms a grand companion to *Thomsonæ*. In habit and character it is very similar, but differs in the colour of the flowers, which are of a dazzling scarlet, and freely produced over the bright shining green foliage, truly classes it as one of the best stove climbers in cultivation.

In *C. fallax* we have without doubt the very best of the shrubby varieties, and I have confidence in saying that when once given a fair trial the results will exceed all expectations, and will not fail to please the most fastidious. It is of an erect growing nature, and freely produces its bright scarlet flowers in large terminal panicles. Firm potting is essential, being conducive of obtaining short-jointed wood, and also adding materially to the strength, size, and durability of the flowers. Propagation may be readily effected by cuttings or seeds, and I much prefer the latter course, although the quickest way is undoubtedly by cuttings.

Plants of *Clerodendrons* which have been at rest should now be overhauled, removing any weak or superfluous wood, and in the case of the climbing varieties tying the remainder of the growths neatly and evenly. They should then be placed in a brisk heat, and kept well syringed to encourage them to break, water at the roots being sparingly applied till root action has commenced. When they have made a few inches of growth they should be either shaken out and repotted or have the surface soil removed and well top-dressed according to the state of the roots.

A mixture of good fibrous loam and peat in about equal proportions, with one-fourth leaf soil or well decomposed manure, to which a little charcoal and sand has been added, will form a very suitable mixture for the climbing varieties, but the shrubby sorts, owing to the grossness of their foliage, will require a somewhat stronger compost. Should any signs of insect pests be detected every effort should be strenuously employed for their extermination, or they will quickly establish themselves on the young growths, when it will be impossible to eradicate them. Should mealy bug make its appearance, the best and most effectual cure is by handpicking, or by sponging with a solution of soft-soap and Gishurst compound.—GEO. PARRANT, *Ashby Lodge Gardens, near Rugby.*

BENTHAMIA FRAGIFERA.

In reply to the query of "J. W. G.," this tree was discovered by Dr. Wallich, and is a native of Japan and Nepal. It produces yellowish flowers and large red orange coloured fruits, which are very attractive, of the size and shape represented in the woodcut, fig. 39. It succeeds in the south and west of England and in the south of Ireland, but it is liable to be injured by severe winters. We have seen handsome trees in the neighbourhood of Cork, the largest being 40 to 50 feet high, and as much in diameter. The tree also fruits well in the county of Cornwall.

FASHION'S FANCIES.

HORTICULTURE, like everything else which contains an element of luxury, is ruled to a more or less degree by the caprices of fashion. No sooner is some new specimen introduced to the public, than after creating a sensation for a short time it is looked on as being common, and something new and novel is expected. By careful investigation and constant experiments on the part of enterprising nurserymen this demand is supplied until gardening, from being the commonplace occupation of half a century ago, has become a science. Public taste of to-day tends towards elegance and gracefulness, taking the place entirely of the stiff formality which formerly characterised it.

Let us consider first the landscapes, a glimpse at many old gardens show a series of straight lines and right angles, beds running parallel to each other, and long monotonous stretches of walks and terraces, all tending towards giving the idea that Nature herself had not assisted in their formation. The garden of to-day is laid out in an entirely different style. Sweeping curves take the place of straight lines, and the ground is laid out to give as natural and undulating an appearance as possible. To accomplish this mounds are thrown up and planted in such form that pretty and unexpected peeps of scenery suddenly open themselves to the gaze; water is called greatly into requisition, not so much in large formal lakes as in miniature waterfalls and rivulets, the running and rippling of which adds an air of life to the landscape. In the planting of shrubs and trees, too, formality is fast disappearing, and only specimens of light and elegant growth are now planted. This reformed system has many advantages, and with a little foresight even the most unsightly spots may be converted into a pleasing landscape.

In our large horticultural shows the same tendency prevails. Formal banks of flower and foliage plants, in many cases all staged at one level, are now displaced by artistic groups arranged for effect, and exhibitors can testify to the fact that gracefulness and elegance must be aimed at when arranging in order to meet with approbation from the judges. In the making up of floral designs it is the same. Stiff and artificial looking wreaths and crosses are now a thing of the past, while the "shower bouquet" takes the place of the formal bunch which was once fashionable.

The same change in taste is also to be noticed in table decorations and the adornment of rooms, anything of long and trailing habit being greatly in requisition.

Turning to the cultivation of flower and foliage plants the same tendency is found. It is with feelings of regret that we see many old favourites now disregarded. Camellias, once so popular, are thought little of now. If you ask the question why, the reply comes, Oh, they look too artificial. And the closely trained Azaleas, which once were looked on with pride, are now thought little of, and are grown in such form in comparatively few establishments. In these instances, and many other of such, we see striking evidence of the capriciousness of dame Fashion. A peep at the flower garden tells the same story. Giant Sunflowers and Hollyhocks are not the favourites they once were, and instead of the unvarying rows of plants following in rotation, harmonious blending of colours and tasteful arrangement is aimed at.

In all these many changes that are ever taking place there is a wide



FIG. 39.—BENTHAMIA FRAGIFERA.

field for enterprise, and it is only through the energy of men who are ever on the alert for something new that this constant demand can be supplied.—WANDERER.

SEASONABLE HINTS ON FLORISTS' FLOWERS.

As soon as the frost breaks it will be well to examine the plants thoroughly, pick off all dead leaves, clear away all green fly, stir the surface of the soil, and where it has shrunk in the pots a little top-dressing of the same compost as that in which they were potted may be added. It cannot but be, I think, that those who have not artificial heat will be out of court when the date for the Southern National show arrives. At this time in ordinary years many of the plants are what *Auricula* growers call truss-bare, and I suppose that even where heat is used it may be overdone, and the plants drawn and otherwise injured.

CARNATIONS AND PICOTEEES.—I have just been looking at my small number of plants which were potted in the autumn, and placed in cold frames ready for planting out now, and find that they look quite as well as one might expect. These flowers suffer far more from damp, muggy weather than they do from cold.

As to those out in beds I know not what to say, as they have had a rough time of it. The plants raised from seeds kindly supplied by Mr. Martin R. Smith, and which had been planted out, have apparently stood the winter well, although, if I had space, I should have wintered these in pots, as I have done my other plants, for I am persuaded that this is the better plan. I read in some paper the other day that one grower for sale disposed of 100,000 plants annually to supply vacancies, many of these being amongst the more highly priced and refined sorts. The border varieties are more coarse, and therefore do not suffer in equal

proportion, though I have known the old Clove to be injured much in severe frost.

GLADIOLI.—We shall soon be able to see how the Lemoinei hybrids have passed through this severe weather in the open ground. Profiting by former experience I did not leave them wholly unprotected, but placed over each clump some coal ashes, and as these have again been covered with 4 inches of snow I hope to find them all right. It will be well to turn over the beds in which planting is to be done, though this will be later than usual.

PANSIES.—It must have been a hard time for these if grown in beds, for even those in pots look miserable enough, although the frames in which they have been wintered had a thick covering of snow. They will soon be repotted in 32's in a compost of loam, leaf mould, well decayed manure, and some sharp sand.

PINKS.—There has been a vigorous attempt to revive the culture of the laced varieties of this fragrant flower in the South of England, but I hardly think much success will attend it, as even amateurs complain of the want of variety amongst them, and they seem to have almost gone out of cultivation.

RANUNCULUS.—The neglect into which this beautiful flower has fallen is a sad episode in the history of gardening. When the bedding out system came into vogue no place could be found for them, and even now, when the more rational method of gardening has superseded it, there seems to be found in few gardens room for them; and yet for variety of colour, for beauty of form, and delicacy of tint it is very difficult to surpass them. As soon as the ground is in proper condition the tubers should be planted 1½ inch deep in rows about 5 inches apart and 4 inches asunder in them. A little white sand or powdered charcoal should be placed round the tubers, and the bed smoothed over with the back of the rake. It would be a matter of great pleasure to many florists to see the culture of these beautiful flowers revived.—D., Deal.

EXAMINATIONS IN HORTICULTURE.

I WAS glad to see this examination brought before the notice of your numerous readers in the *Journal of Horticulture*, page 184; I think it is a great pity that more gardeners do not enter as candidates.

I must differ from "A Young Gardener," for he thinks the age of the candidates should be limited. But why? He says that "young gardeners have no chance when our chiefs take the pen." He evidently does not know that out of the eighty-four candidates who passed last year forty-nine were young persons whose ages were from sixteen to twenty-five, and I may say not all of these were gardeners. I think it is within the reach of anyone who possesses a knowledge of gardening and its scientific principles to gain one of the Royal Horticultural Society's certificates; ability here, in the practice or theory alone, is not sufficient to enable the candidate to pass well; he must know both, and then he need not fear the result.

Last year sixteen questions were given. Four were to be answered from Division A, Elementary Principles; and four from Division B, Horticultural Practice. Three hundred marks were given as a limit, but any persons gaining 200 or over were placed in the first class, those gaining from 150 to 200 in the second, and from 100 to 150 in the third; anyone failing to gain 100 marks did not pass. It is easy to see by the above that one has as much chance to gain a certificate as another; that is, if his answers are good, for upon these his number of marks depend. Here one is not, as it were, running a race, and must win or lose, for all who sit might (if their answers are good enough) gain a first-class certificate.

It should be the aim of every young gardener to gain one of these certificates, for no doubt they will be of as much importance to him (in time) as a practical reference, for it naturally shows that the winners of them have their work at heart. When employers recognise the value of the certificates there will be no lack of candidates for them.—W. D., Turnford.

UNDER the above heading in your last week's "Notes and Gleanings" I was sorry to see the remarks made by "A Young Gardener," and trust such a one-sided (not to say selfish) view does not pertain to many of his class. Why indeed should there be a limit to age? Examinations such as these are tests of knowledge, and to be plucked is simply a proof of insufficiency. To prevent a man of years (perhaps well versed in his profession) from being examined cannot add one jot to "A Young Gardener's" experience or knowledge of horticulture, or deter him from acquiring it. I recommend to him the motto, "*Palma non sine pulvere*" (the palm is not gained without dust: no excellence without great labour), and if he then takes full advantage of the valuable information and notes on experiences given in the *Journal of Horticulture* week by week by some of "the chiefs," the abundance of horticultural literature and technical education, much of which was not available to men a few years his senior, he should certainly be able to hold his own with credit to himself and without prejudice to others.—A YOUNG AMATEUR GARDENER.

NOTES AND COMMENTS.

I CAN fully endorse all that Mr. Duncan Pearson says about the beauty and utility of forced Daffodils. In our small way we have forced them successfully several times, and this year Horsefeldi, Stella, and Poeticus ornatus have more than repaid us. We also tried a semi-double Daffodil, an old garden variety, the name of which I do not know, possibly

Telemonius plenus; it, too, did well. The soil appears peculiarly suited for Daffodils of several varieties, and the ordinary Narcissus. Of the latter we can grow almost any number, and have taken in a piece of orchard ground for their further cultivation. Last year we noticed the unforced blooms were very small, and we attributed it (perhaps wrongly) to the long drought.

From the Castle Gardens, Warwick, I note with pleasure the hint about Antirrhinums for bedding purposes. The colours are so good, the plants so compact, and they are such capital "stayers." There is a posy of them to be gathered when many annuals have succumbed to the austerities of the autumn.

Of *Nemesia strumosa* I cannot say so much, it was a disappointment, small variety in colour and "legginess" in habit of growth. Perhaps, like many other amateurs, we did not fully understand the plant's requirements. I know we planted it firmly in well prepared soil, for we rather fancy ourselves at that.

Double French Marigolds do not receive a word too much of praise. They have only to be seen to be appreciated, and to my mind, as table decoration, they are charming—the shading of light yellow to rich brown is so effective.

We never consider ourselves complete here without a bed of *Salpiglossis*. Seen first in an illustrated catalogue, we were inclined to think the brilliant colours must be an exaggeration, but the reality surpassed our imaginations.

As to Tomato houses in the winter. If Arums here are sold now in February at 1s. per spathe, surely in other places there must be a demand too, especially as they fill up so well in wreaths. Would it be possible to grow Arums in long boxes, as the round pots take up so much room? Would the small Arums be as floriferous as the large variety?

The red Abutilons have a splendid habit, so neat and compact, and the flowers are thrown well out above the leaves. Is there a yellow variety with that habit, as the only one I know tucks the flowers carefully away under its broad leaves, as though it were ashamed of them? Here we are on March 4th with frost-bound earth, howling winds, and blinding snowstorms—not much like outside gardening, but surely better and warmer days are at hand.—THE MISSUS.

FRUIT TREES IN A CALIFORNIAN NURSERY.

IN treating the subject assigned to me, "Fruit Trees in Nursery in California," I shall not attempt a lengthy history or recapitulation of the trials and struggles of the pioneers in the business, but merely to deduce a few facts which, in a measure, have been the outcome of these struggles, and which, at this date, have passed beyond the stage of experiment or theory as far as general culture is concerned, although there are constant improvements in method and detail, as well as in the introduction and dissemination of new varieties.

It would be impossible for me to refrain, however briefly, from mentioning a few of the men to whom California and the whole of the United States owe so great a debt of gratitude—such men as John Lewelling of San Lorenzo, James M. Thompson of Napa, B. S. Fox of San Jose, who have gone to their rest; James Shinn, Dr. E. Kimball, W. B. West, Luther Burbank—these and others are the men who have done and are doing for their state and country a work the value of which is far-reaching and everlasting. I say the results of their labours will never die, for with their ardent and enthusiastic pomological work a love for horticulture in its more beautiful and æsthetic form is ever present, and its influence contagious and wide-spreading.

First, Soil. This is all-important; a deep, sandy loam is generally preferred, rich in humus, or, in some places, a very rich black vegetable loam is found, which will grow fine trees for many years. Usually the land is rested every two or three years, or planted with some other crop. In such lands in Northern and Central California irrigation is seldom necessary in the cultivation of deciduous fruit trees. For eighteen years in Napa Valley I have never had occasion to irrigate trees in nursery. Where the soil is deep and the winter's rainfall amounts to 20 inches or more thorough cultivation will cause the moisture to be retained within a few inches of the surface throughout the entire summer. Further south, when the rainfall decreases, irrigation is necessary. There are champions of irrigation who believe there can be no good trees or no good fruit raised in California that are not irrigated. There are those who assert just the reverse with equal vehemence. Mr. A will have nothing but northern grown trees; he would take them from Oregon, but prefers Washington, or even Alaska, if Professor Budd would find some varieties sufficiently iron-clad. Mr. B, his neighbour, prefers trees grown in the sunny south, in sandy soil, and with "perfect root system." Mr. C ridicules both; he wants an "acclimated" tree, one that is grown in his immediate vicinity; while his neighbour D will take none but "whole-root" trees from Missouri, provided they can escape the vigilance of our State Board of Horticulture.

Second, The methods of propagating and planting fruit tree seeds and stocks are of course similar to those in other States, with some variation owing to climatic conditions. We have no fall and spring seasons. We begin operations as soon as trees are sufficiently dormant

and when rain enough has fallen to moisten the ground, say in October or November, and from then digging, packing, ploughing, and planting, all go on with a rush, only stopping when it rains, or when the land is too wet.

No one with the proper amount of intelligence and experience will fix a date, or even a month, for any horticultural or agricultural operation in California; it is absolutely suicidal. There have been more wrecks upon this rock of arbitrary time than upon any other. A man will fix upon the month of February in which to plant his orchard. Previous to that the weather is fine and land in good condition, but he does not hurry. February comes, he engages his extra teams, and starts his ploughs. The clouds gather, the Weather Department says there is a "cyclonic disturbance" off the mouth of the Columbia River, or a "barometric depression" along the Oregon coast; the rain begins and continues with little intermission until March. Then spring is on us, or rather summer, and the favourable opportunity is gone. Or the time fixed may be a period of dry north winds, very detrimental to the preparation of the land or the handling of trees. Therefore push all work in the nursery, orchard, or farm, never resting unless obliged to by reason of rain.

Root-grafting indoors is seldom practised now, while it used to be in early days, when stocks and roots were scarce. Budding during July, August, and September is the chief method of propagation, and also crown-grafting in the nursery rows in the winter or spring.

Third, The stocks most used are the Peach for the large stone fruits, with Myrobalan for some varieties of Plum, and for Plums and Prunes generally for planting in heavy soil. Apricots are worked on Myrobalan to some extent, and Peaches; but the latter is not a success, and if the land is too wet to grow Apricot on Peach, far better let it be planted in Plums and Pears.

The best Peach stock is the "natural" or seedling seed, and it will germinate readily if kept moist in sand until planting time, without the frosts, which in the east are considered necessary.

Almonds are worked on hard-shell seedling Almond, or for planting in shallow soil the Peach stock is preferable.

Cherries are budded mostly on Mazzard, the Mahaleb being apparently short-lived. Pears upon Pear, and Apple upon the common Apple stock. Quince and other stocks for dwarfing are seldom used. It is found that in time a Pear grafted on Quince, or Apple, or Paradise stock will throw out roots above the graft, and overcome its dwarfish aspirations.

The fruit-planting public is very hard to please in the matter of stocks. After a wet season, when trees in low spots are apt to suffer, the demand for trees of every description on Myrobalan root is very great. A customer (he said he was a nurseryman too) frantically demanded Bartlett Pears on "Mary Boland," which reminds us of our cook of Hibernian descent, who, being of an orderly turn of mind, labelled a certain article of food "McRoney"—doubtless fond recollections in both cases. Our Pear, Plum, and Cherry stocks are mostly imported from France.

Fourth, Varieties. Not to be wearisome, I will name but a few as types of what are most largely grown in California. In the warm valleys the Red Astrakan Apple is very profitable, because early, and of large size and handsome. Gravenstein and Alexander are among the best late summer Apples, and Fall Pippin, Hoover, and Yellow Bellflower for autumn; Newtown Pippin, Paragon, Arkansas Black are valuable for winter. In the mountains of Northern California and in many parts of the coast range Apples are grown with all the keeping qualities of the best Apple regions of the United States. This fact is not generally known, but it can be abundantly vouched for by Prof. Emory E. Smith, late chief of Department of Horticulture at Mid-Winter Fair, and by Prof. Husmann, one of the judges. As fine an exhibit was there shown of Apples during March and April as could be seen anywhere in America at that time. The Bartlett Pear is the standard in California; Winter Nelis, P. Barry, Doyenné du Comice, President Drouard, are good winter varieties.

Early Crawford, Foster, Muir, Susquehanna, Salway Peaches are types of yellow freestones. Muir is of Californian origin, resembling Wager, but drier. Alexander and Hales' represent the earlier varieties; Orange and Heath typify the clingstones. There are many seedlings of local reputation, some of them of exceptional value. The field, however, is so extensive and so prolific that the State Horticultural Society has not yet been able to control it as to identification and nomenclature.

The standard Apricots are Royal, Blenheim, Peach, Moorpark, Montgamet. Nectarines—Boston, Hardwicke, and New White.

The varieties of Plums and Prunes are almost endless. All standard European varieties succeed well in the valleys of Sacramento and the Bay counties. The Japanese varieties and their hybrids grow to perfection best near the bay or not too far inland. Most of the early varieties of Plums succeed in the warm valleys and plains, but the climate there is too hot for later varieties, unless like d'Agen and others for drying purposes.

The Sacramento Valley is, perhaps, the home of the Peach, although while in Solano, Santa Clara, Fresno, Napa, one would be apt to think that there alone did the Peach, the Prune, or the Apricot grow to perfection.

The whole question of adaptability is too extensive to deal with in detail. California, as a fruit-producing State, is so immense that to more than touch upon these points would be impossible. For the same reason our Nurserymen's Association has never been able to accomplish much. Every nurseryman is for himself, too much so for his own good.

The whole world is ransacked for varieties of fruit or nuts, new or old, which may prove of value here. Many nurserymen have their own experimental orchards, and all are constantly acquiring knowledge which, if sifted down and disseminated, would be of much value.

As nurserymen, we do not desire to antagonise our brethren east of the Rockies. We have been blamed for insisting upon unnecessary quarantine laws against outside nursery stock. Instead of that the nurserymen here could often make more money by importing trees, while labour in California is so much higher than elsewhere.

The fruit growers have had expensive battles to fight against Australian and other insect pests, and they wisely took action, resulting in an enforced inspection of all nursery stock from outside the State, or as between one country and another. The State Board of Horticulture has done a grand work in this way, and the results are generally appreciated.

I cannot close without expressing the hope that the American Pomological Society will give us some insight of the workings of State organisations and assist us in perfecting a plan whereby our fruits may be uniformly named, and varieties apparently identical or nearly so weeded out from the list.—LEONARD COATES, Napa City, California. —(Read at meeting of the American Pomological Society.)



HARDY FRUIT GARDEN.

Spring Planting Fruit Trees.—When the ground has become warmer and comparatively dry on the surface after the prolonged frost, fruit tree planting may be proceeded with. It is unwise to carry on such important work when the soil is sticky after frost or rain. The subsoil, too, must have time to thaw ere much is done on the surface. There will be no time lost in waiting for the conditions to become more favourable. On heavy, retentive soils a dressing of wood ashes and decayed vegetable refuse will do good if forked into the surface. Should March and early April prove to be open and dry, the soil would then naturally be in a pulverised condition. Cold, drying winds ameliorate the surface, quickly rendering it workable, so that it neither adheres to the tools or the boots. The soil having reached this stage, it is best to grasp the opportunity and endeavour to complete planting. Quarters dug before the frost may be lightly forked over, working in a little light dry material, or if in ridges these may be broken down. Prepare holes for the reception of the trees at the proper distance apart. Make them wide and shallow so that the roots can be spread out, yet not buried deeply, and never plant lower than the visible earth mark on the stems. If the soil has had no preparation the digging or trenching required ought to be pushed forward as quickly as possible. Planting may follow immediately, because the newly turned soil, after a few days' exposure, is in admirable condition.

Preparing the Trees.—Fruit trees and bushes may be planted up to the time of the buds swelling. While out of the ground the roots must be carefully kept in a moist condition. The prospect of a good start and a continuous vigorous growth depend largely on the healthy state of the roots. It is useless for nurserymen to pack trees well if on receipt by the customers the material is quickly taken from them, leaving the roots bare for a considerable time before planting. Instead of this the trees should be inserted in moist soil, and if any have the roots dry or shrivelled they should be placed in water for some time. Before planting cut off broken ends of roots with a sharp knife, taking care that none are left with jagged ends, as this means loss of time in forming new fibres. Roots with smooth extremities soon heal, and put forth fibres that make rapid headway as growth strengthens. Those with injured points are slower in sending forth rootlets. The damaged extremities die back a considerable distance, and the root power of the trees is lessened accordingly.

Planting.—When planting it is desirable to have in readiness a barrowful of compost, consisting of light loamy soil and wood ashes incorporated together. This forms an admirable mixture for spreading among the roots as the work proceeds. These having been trimmed should be spread outwards in layers to their full extent, beginning with the lowest. Sprinkle soil among them, working from the stems of the tree outwards, so that none of the young fibres are turned upwards, downwards, or backwards by its distribution. Treat the next layer the same, and so on till all are properly distributed, the upper roots being finally 3 or 4 inches from the surface. A stake should be fixed firmly by the side of the tree to keep it in position. The soil worked in this manner should be made firm, but it is not advisable to trample over the roots, especially near the tree, for fear of damaging any of them. A light mulching of manure spread over the surface will prevent the soil drying too quickly, yet admitting sufficient air and warmth.

Pruning Newly Planted Fruit Trees.—Whether planted in the autumn or spring most fruit trees will require the branches shortened before growth fairly commences. The extent to which they need pruning back will depend on their condition when planted. Many trees lose a large proportion of their best roots in the process of trans-

planting from one position to another. With such as these it is necessary to adopt closer pruning than is essential when a tree can be removed with comparatively little loss of fibres. The object of pruning after planting is to induce moderately vigorous growth equally over the trees in order that the proper number of branches may be obtained. This object may not be reached the first year, but it will ultimately be attained if the pruning proceeds on right lines. Trees that had but few roots when planted should be pruned back to one-third the length of the branches. Those that had a large proportion of roots which were but little damaged may have the branches pruned so as to leave at least two-thirds. In every case cut back to a wood bud, and to one pointing in the direction it is desired the branch should extend. The pruning must also be regulated by the strength of the trees, weaker examples being cut in closer than strong ones. Neglect in pruning during the first year frequently results in stunted growth, because these being left at full length the limited number of roots have no power to push fresh ones; their energy is used up in sustaining the wood and buds already existing. As a rule the closer the pruning the first year the more vigorous is the growth which follows.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest Forced House.*—The fruit has nearly completed the early swelling and entered on the stoning process. If the thinning has been carefully attended to there will be little more than the necessary quantity—that is, one fruit to each square foot of trellis covered by the trees. More are usually left in order to meet contingencies, but it is certain that if a tree can only stone a certain number of fruit a selection of the most promising will be advantageous both as regards the stoning and swelling of the fruit retained. If there is more fruit than the trees can possibly bring to maturity thin it before rather than after the stoning process, removing the smallest and badly placed. The chief cause of fruit not stoning is the immature and ill condition of the wood. During the stoning process keep the temperature as even as possible, avoiding sudden checks from cold currents of air in the daytime, and undue excitement at night. The night temperature may range from 60° to 65° in mild weather, but 5° less is safer and better when severe; 65° by day from artificial means is quite high enough when the atmosphere outside is cold and the sky overcast, ventilating from the figures last named, but allowing an advance to 70° or 75° from sun heat, the latter temperature not being exceeded without full ventilation. Secure the leading and other shoots required for furnishing the trees. Syringe with water of the same temperature as the house to keep down red spider. If aphides are troublesome fumigation may be practised moderately on two consecutive evenings, taking care to have the foliage dry. A decoction of quassia chips, 4 ozs. boiled in 2 gallons of water for twenty minutes, then straining and dissolving 4 ozs. of softsoap in it as it cools, is quite strong enough for young foliage, and equally good for destroying aphides, thrips, and red spider. With a tablespoonful of petroleum added, after emulsion in eight parts of boiling water to one of softsoap, the mixture is effective against young scale. Supply water to the border as required, not being deceived by the surface, which is often wet from syringing, whilst the soil below is dry, but make an examination and give sufficient water or liquid manure to thoroughly moisten the soil. Nitrogenous manures, however, must be used carefully during the early stages of swelling and the stoning process, the chemical manures being of greater benefit than humus-forming ones at this stage.

Second Early House.—Trees started at the beginning of January should be gradually disbudded, removing the strongest and ill-placed, so as to secure an equality of vigour. Tie the leading shoots carefully down, not too tightly, with sufficient space for all to receive the full influence of the light. Thin the fruit by degrees, and where it has set thickly extra attention will be required, removing those on the under side of the trellis or where badly placed, but leaving those that are well exposed to light and air until they indicate by free swelling the need for further reduction, then remove the smallest, and so proceed until the number is reduced to the crop the trees are calculated to bring to maturity. Syringe early during fine days, always early enough in the afternoon to allow the foliage to become fairly dry before night. Ventilate when the weather is favourable, and do not close so early as to advance the temperature considerably, as it only aggravates the tendency to produce wood, which is unfavourable to the retaining of the fruit. The temperature may range from 55° to 60° at night and 60° to 65° by day, ventilating at the latter temperature, and closing the house when the heat is decreasing, but not to advance more than 5° from sun heat.

Trees Started Early in February.—The trees being in flower the night temperature may be maintained at 50° to 55° in mild weather, falling 5° or even 10° in severe, the temperature named being sufficient on dull days with a little ventilation, as a close atmosphere is fatal to a good set. Ventilate freely from 55°, and allow an advance to 65° with sun heat. Fertilise the blossoms in the early part of fine days, either shaking the trellis or brushing the flowers with a camel's-hair brush when the pollen of the individual flower is ripe. Syringing is best dispensed with whilst the trees are in bloom, but the floor should be sprinkled occasionally on dull days, and morning and afternoon in bright weather.

Midseason Houses.—The trees of midseason varieties to afford ripe fruit in July and August must now be started, syringing them in the morning and afternoon in bright weather, but occasionally only in dull periods, ceasing the syringing over the trees when the blossoms show colour. Where there is a superabundance of bloom buds it is a good

plan to ease the trees of those on the under side or back of the shoots as soon as they are sufficiently advanced, a gloved hand drawn contrary way of the growth doing it expeditiously. Where the trees are weak it is excellent practice to relieve them of the flowers to the extent of at least half those required for setting, and cross-fertilise the flowers, affording some gently stimulating food, such as superphosphate of lime three parts, muriate of potash two parts, and one part ground gypsum, mixed, using 3 or 4 ozs. per square yard, and washing in moderately after the soil has been brought, if necessary, into a properly moist condition. This may be repeated at intervals of four to six weeks. Maintain a temperature of 50° by day, ventilating from that, and not allowing an advance to or over 65° without full ventilation; the night temperature should be kept at 40° to 45°, with a little air constantly at the top of the houses.

Late Houses.—The trees from which the lights were withdrawn have not suffered in the least from the severe frost, and the buds are in an as yet safe condition, therefore the lights need not be replaced until the blossoms have arrived at the point of showing colour. This ensures late flowering, and the later the better, so that fruit may be produced in October, which of the large kinds, such as Gladstone, Sea Eagle, and Golden Eagle Peaches, bring better returns than in September, when it is amply supplied from walls. Where the roof lights are fixed ventilation must be given to the fullest extent, so as to retard the flowering as much as possible, but no good comes of keeping the house cold after the blossoms show colour, as it is then that the organs need to be kept in progressive development. Many late houses are unheated, which is a mistaken idea of economy, as when the weather is cold and dull during April—the time at which it is desirable to have late house trees in flower—the atmosphere is too close, moist, and cold for the satisfactory development, while there is danger of damage from spring frosts in that month, and even in May. In cold, sunless seasons the fruit does not ripen satisfactorily, and the wood is so immature as to prejudice the future crop. A gentle heat during the flowering does much towards a good set, and in the autumn artificial heat with free ventilation ripens the fruit and wood, so that the current and future crops are alike benefited.

Unheated Houses or Wall Cases.—These are admirable means of growing fruit. They should be provided with both top and bottom ventilation, and the roof lights, except the ventilating ones, be moveable. We have tried both systems, fixed and moveable roof lights, and find the latter far the best. The roof lights are taken off directly the leaves of the trees commence falling, and off they remain until the buds have the blossom peeping. This means, with Apricots, replacing the lights a month or more earlier than for other fruits, and necessitates having the trees of the different kinds in compartments. The system answers admirably for Apricots, which produce fruit abundantly, and the trees are remarkably healthy and free from gumming to a much greater extent than on those open walls. Cherries do even still better than the Apricots, giving fruit at the close of May or early in June in forward seasons, and which can be kept from the depredations of birds, cracking or spoiling by wet. Plums do well, and are never so fine and luscious as when grown under glass. Peaches and Nectarines afford a supply of fruit from July to October inclusive. Pears revel in the spring time, and the fruit attains to a size and colour seldom seen on open walls, but the quality is often very defective. It is desirable to expose the trees after the weather becomes settled in June, and then a crop is secured with quality in the fruit. The better plan is to grow the Pears in pots, and only place under glass for the securing of a crop. Figs ripen one crop of fruit in August and September, also Grapes, early varieties of the latter being selected, and they are quite as good as those produced in expensive vineries. Anything in the way of pruning should be completed, the trees and house being put into thorough order. The borders of houses that have not the lights removed may need supplies of water, so as to bring the soil into a moist condition. Ventilate freely, so as to retard the flowering to as late a period as possible.

Cherry House.—Ventilation is an important factor in the cultivation of Cherries under glass. A free circulation of air should pass through the house whenever the temperature exceeds 50°, the amount of air being regulated by the conditions of the external atmosphere. Employ fire heat only to prevent the temperature falling below 50° in the daytime, and to maintain a night temperature of 40° to 45° in the house when the trees are in flower. Attend to fertilising the blossoms. Fumigation must not be resorted to whilst the trees are in flower, but will be necessary as soon as the fruit is set. It is also requisite to watch closely for the appearance of grubs; one kind rolling itself up in the leaves, and can be eradicated by squeezing, but the other encases itself in a sort of web on the under side of the leaves, giving them a scorched appearance, and from these it passes to the clusters of fruit, perforating and destroying them. The only means of riddance is to examine the trees occasionally and destroy the caterpillars.

Figs.—*Earliest Forced Trees in Pots.*—Trees plunged in bottom heat require water or liquid nourishment somewhat abundantly, always at the temperature of the bed, which at 70° to 75° enables the trees to make steady progress. The atmospheric temperature should be maintained at 60° to 65° at night, admitting a little air in the morning at 70°, but not so as to lower the temperature, closing at 75°, and if the heat rise to 80° or 85° it will be more advantageous than otherwise. Thin the fruit, if too thick, as soon as the best placed and most promising can be decided upon for the crop, but it is not advisable, as a rule, to thin them much before flowering, which occurs before the Figs

commence the second swelling. During this process the trees must not be hurried, but the temperature kept as even as possible.

Early Forced Planted-out Fig Trees.—The house started at the beginning of January are making good growth, and should have the shoots at the base of the terminals pinched at the fifth or sixth leaf, but where this is likely to crowd the trees disbudding must be resorted to, and early, so as to not give the trees a severe check, as that may cause the first crop Figs to fall. The terminal shoots may also be stopped if they grow too luxuriantly, but no amount of stopping will induce fruitfulness, and the extensions always produce the finest Figs, it being essential to secure stout, short-jointed wood fully exposed to light. The nearer the glass, provided the points do not touch, the better the fruit. Keep the night temperature at 55° to 60°. When it reaches 65° by artificial means in the daytime admit a little air, increasing the ventilation with the temperature, leaving it free at 70° to 75°, and reducing it in like manner, closing at 70°, syringing twice a day, and maintaining a genial atmosphere.

THE FLOWER GARDEN.

Ageratums.—If seeds are sown at once in pans and placed in brisk moist heat, covered with glass, carefully shaded, and kept uniformly moist, they will germinate quickly, and a large stock of strong plants eventually be the result. Prick them out in pans or boxes of good soil, top the plants when about 3 inches high, and soon after temporarily hed them out in rough frames. From these they will transplant readily when required.

Alonsoa Warscewiczii compacta.—This, in addition to succeeding well in pots in the open or greenhouse, is really an excellent hedding plant. When at its best it is showy yet chaste, the plants producing numerous elegant spikes of pea-shaped orange-scarlet flowers, which for vases are particularly popular. Plants may be raised and grown exactly as advised for Ageratums.

Early Asters.—It is a mistake to sow the bulk of Aster seeds before the end of March, as the plants rarely do well after having been kept too long in a crowded state. With a view to having an early display, and something to cut from, sow seeds of Comet, Queen of the Market, and Dwarf German at once in boxes, and place these in a warm vinery or Peach house. When the seedlings are large enough to handle prick out 3 inches apart in other boxes, and keep in a warm house till well established, then harden, and transplant not later than the middle of May. Asters pay well for liberal culture.

Early Stocks.—The Early Forcing Snowflake, a variety belonging to the Ten-week section, can be had in flower considerably earlier than other varieties, and ought to be both gently forced in pots, also flowered on a warm border in June. Raise and treat very much as advised in the case of early Asters, though if pots can be afforded for the plants they will be found to move better out of these than boxes.

Mignonette and Sweet Peas.—There is always a demand for these in a cut state, and in order to obtain them earlier than can be done by sowing seeds in the open ground the plan of raising in pots and planting out should be adopted. Sow seeds thinly in 2½-inch pots and place in heat to germinate. Reduce the Mignonette to three plants in a pot, and five or six Peas in each pot are sufficient. Gradually harden for planting in deep well worked soil. If seeds are plentiful sow in the open as soon as the ground is in suitable condition where the plants are to grow and flower. Avoid sowing thickly, or else thin out freely later on, as crowded rows are always the first to fail. Mignonette may also be sown in the open.

Centaurea cyanus major.—These popular Cornflowers ought always to be raised early, autumn-sown plants succeeding best. Unfortunately most of these have disappeared, and seeds should be sown in heat at once with a view to having plants to turn out early in May. Raise thinly in small pots as advised in the case of Mignonette in preference to sowing in pans or boxes and pricking out. Also grow in the open borders for a succession.

Cineraria maritima.—Where large beds and various borders have to be filled during the summer a few score or hundreds of this silvery leaved and fairly hardy Cineraria should be grown. It is not yet too late to sow seeds in heat, and if the seedlings are kept growing they will prove effective from the time they are planted out.

Gaillardias.—There have been many losses among summer hedding plants. Without being models, as substitutes some of the Gaillardias are effective. The varieties *G. picta* and *G. Lorenziana* are the best for the purpose, as they are very free flowering the same season as raised. The seeds may be sown thinly in pans or boxes, and the seedlings prepared for transplanting in May. These Gaillardias should be given small beds to themselves, as they spread freely and also flower most abundantly when not shaded by other kinds of plants. They may, however, be used similarly to Violas, having other plants dotted thinly among them.

Nicotiana affinis.—This sweet-scented showy Tobacco ought to be freely planted in large beds, mixed borders, and thinly stocked shrubberies. Seeds should be sown at once on the surface of soil in pans, moistening the latter before rather than after sowing. The seedlings must be grown sturdily, and strong examples provided for planting in due season.

Pyrethrum aureum or Golden Feather.—There is time to raise any required number of plants by sowing thinly in boxes, or better still on a bed of soil in a frame or pit, a gentle bottom heat being desirable. Plants so raised may after a little hardening be inserted in the beds or borders where they are to grow, quite small plants, if looked after, quickly attaining to a showy state.

THE BEE-KEEPER.

APIARIAN NOTES.

WINTERING BEES.

MANY years have elapsed since I solved the problem of wintering bees safely in this climate, the present season, however, with the moving, and the disease some of them suffered from has reduced several hives to a few hundred bees.

I am glad to say all have wintered well, including these weaklings, which are not only healthy, but have more than doubled their numbers since November; this is both gratifying and reassuring.

I need not repeat what I have written so often, but for the benefit of beginners I may state that these weak bees occupy full-sized, single-walled hives, with entrances half an inch wide; the top of the frames within the super-protector are covered with about 3 inches of porous material, the sides with two ply of old sacking and an oilcloth, and the roof with a sheet of half-circled iron. The excessive loss of bees previously mentioned I attribute to the moving during zero weather, a time very unfavourable to disturb bees.

There is one hive in perfectly good health and condition that has not shown a single bee outside. The great contrast to my apiary with those managed on other lines that we read of having bees and combs frozen to a solid mass will perhaps be a salutary lesson to those who have been so unfortunate, to think twice what plan they should adopt to prevent a recurrence of such a disaster in coming winters.

As successful springing depends on leaving bees alone in every respect, I have given as a commencement in feeding a little honey in tin scoops, but shall feed with syrup immediately the temperature rises to 50° or 55°, and on no pretext should I feed from the top, or do any act which may reduce the temperature of the hives.

SUCCESS OF THE LANARKSHIRE HIVE.

"G. R." writes:—"Will you please tell me which you think is the best for the Lanarkshire hive, a three-eighths or a quarter of an inch lip for the frame ends to rest upon? I followed the instructions you gave me, and am pleased to tell you that I took first prizes in strong competition. These sections were all worked by a single Lanarkshire hive; in fact, my sections worked on the standard hives were not to be compared to these mentioned above. My Lanarkshire hives have wintered well."

We are pleased to hear of your success, which corroborates many others in the same county (Yorks). It does not matter whether the rebates are three-eighths or quarter, the latter for five-eighths wood; if three-quarters then they may be three-eighths, the great object being to have the boxes accurately one size as well as that of the frames, so that manipulation will be easy, which can only be when all frames are interchangeable.

DOES BEE-KEEPING PAY?

The above question continues to be frequently asked, and now and again the inquirer details his disappointments in a doleful manner, sometimes going so far as to throw reflections on those who were the means of him starting bee-keeping. I have answered scores of letters from those who appeared to be disappointed or in want of full information on the subject.

My advice in all cases was tempered with caution, showing how and where bees would pay, but never advising anyone to start bee-keeping with the view of making large sums of money exclusively from them, and to be prepared for actual loss in some seasons. I have at all times encouraged persons to keep bees as an auxiliary to other employments, whether the honey was to be sold or consumed by the bee-keeper's family. There is another side to the question. He who steps aside from modern popular ideas and customs, renouncing superfluous holidays, betaking to himself the love of keeping bees, paying great attention to increasing the produce of the earth for his own or the public's good, thereby becomes a benefactor to the world, and does more to solve the problem of what shall we do with our starving thousands than all the theories ever propounded.

There is work for all if gone properly about; therefore let all make an effort, at the same time looking ahead, and they will maybe see clearly more ways than one of "keeping the wolf from the door," and of laying something apart for the proverbial "rainy day."—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES.

THE favourable change in the weather which set in ten days ago has continued, although there has been a few degrees of

frost each night. Bees have been on the wing daily, and the thermometer registering 45° in the shade has enabled bee-keepers to effect a thorough overhauling of their stocks. It is not advisable so early in the season to uncover the bees more than is really necessary, or to lift out the frames, or in any way to interfere with them, or much harm may be caused by it.

All stocks should be examined to see that they are not short of stores. This can be done by turning back the quilt, and if on looking down between the frames sealed stores are visible, they will be safe for the present, but should further supplies be needed, feed with candy as previously advised. After such a spell of cold weather it shows the advantage of loose floor boards, as by having a few spare ones on hand the hive can be lifted off its old stand and placed on a clean, dry board. The board which has been in use all the winter can then be cleansed of all dead bees and any débris that may have accumulated, and if wet should be well dried before being used again, as after a long storm, when snow has lain about the hives for a considerable time, it is surprising how the moisture will penetrate some of the most carefully made hives.

Straw skeps must not be neglected. These should be examined, and if on lifting them they are found to be of fair weight, they are right as regards sufficient stores, as with a little practice one can soon distinguish between those that have ample stores and any that require feeding. The former may be put on clean, dry boards; the latter should be quietly turned up, and a cake of candy inserted between the combs, or through the feed hole at the top of the skep, but care should be taken to prevent an escape of heat. The late severe weather should have proved whether straw skeps or frame hives are the best for wintering purposes, and as I have been experimenting with both, I will shortly report the results.—AN ENGLISH BEE-KEEPER.

ECCLESIASTICAL BEES.—In California, where there are comparatively light winters, and flowers to be had all the year, the honey bee does not seem to care about the fostering protection of man, but makes its home in the wilds where it chooses. A Californian paper speaks of a large colony having taken possession of the roof of an Episcopal church, and as they interfered with nobody, nobody interfered with them; but when the recent hot weather came, and the honey melted and flowed in streams down the walls of the building it was considered a little too much of a good thing, and someone had to be found to clear out the little workers. He got 100 lbs. of honey for his fee without the necessity of scraping the walls to secure the overflow.—("Meehan's Monthly.")



* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Vines Bleeding (H. S.).—You had better take a hot iron and scorch the points of the canes, then daub them with red or white lead as soon as it is done. Some persons have found powdered alum useful. A little oozing will do no harm, but a free flowing will weaken the Vines. As soon as the leaves develop they will take up all the sap.

Sewage for Potatoes (Nemo).—You may safely give the well drained ground, previously to digging, a heavy soaking with the contents of your cesspool; and if the plants during their early growth seem weakly, pour another good soaking between the rows, and repeat it after a fortnight if apparently needed. In a poor soil we should prefer this treatment to a heavy application of stable manure.

Fungus in Mushroom Bed (B. H.).—The fungus infesting your beds appears to be a *Coprinus*, and is wholesome when gathered young, still can only be regarded as a weed in the beds. It grows from spores that have either found their way into the manure or the soil used in casing the beds. Clear the interlopers away as soon as you see them, as they quickly mature spores for dispersion and further infestation.

Orchid Peat (J. K.).—The sample you have sent is not such as is usually sold and used in the cultivation of Orchids. As the first bag is admitted to have been sent in error, and the second was the same as the first, it seems to follow that a second mistake has been made. Obviously we cannot take any action of the nature you suggest on the basis of the mistake. It is the only case of the kind that has been brought before us.

Weather Predictions (A. B.).—We are obliged by the extract, but have not space for its insertion. By all means compare the results with the prognostications. In our experience weather prophets who venture far into the future are more often wrong than right. None of them, so far as we know, gave due notice of the extraordinary frost of the past month, which it is thought might have been worthy of their attention if they had foreseen the visitation.

Seedling Cyclamen (J. Grimes).—The flowers are unusually rich in colour—deep, glowing crimson, and the variety is worthy of preservation. All you can do is to isolate the plant, placing it in a favourable position for the ripening of pollen, and with a little delicate manipulation you may assist in the "self-fertilisation." All the seedlings may not come true, but some of them may be expected to do so. We do not remember having seen any flower quite so rich in colour exhibited.

Grass Edging Broken (E. G. A.).—You cannot make a firm edge by outside additions, but you can do so by cutting through the turf in line a foot or so from the edge, then with a sharp spade raising and drawing the portion so sliced off as far as is necessary into the walk, rolling it well, then with a line and sharp knife slicing the rough margin away to a fine smooth edge. The vacancy made in the lawn can be filled with fresh pieces of turf made level and firm, or by filling them with soil and sowing grass seeds.

Lichen on Lawn (P. H. N.).—The plant infesting your lawn is a species of Lichen, and indicates that the ground is not well drained and the turf weak. The following would be the best course to adopt. During the early part of March, as soon as the weather permits, apply a dressing of well-decayed manure, spreading it evenly, and letting it remain until the close of March, then with an iron rake scratch the ground well forwards and backwards, which will assist in distributing the manure and form an open surface. Early in April remove the loose portions of the manure by raking it evenly, and any stones should at the same time be removed. This will form a good tilth for the Grass seeds, which may be sown early in April, with an early prospect of rain, and on a fine or calm day.

Grevillea — Scented Window Plant (Inquirer).—*Grevillea rosmarinifolia*, a native of New South Wales, is more slender than *G. robusta*, and is gracefully attractive when well grown. It requires a light position. Your question as to "the best all round scented window plant" is somewhat a puzzle, as a perfume that may be agreeable to some persons may be the reverse to others. The Cape Pelargoniums Little Gem, Prince of Orange, and Lady Scarborough are attractive window plants with fragrant foliage. Some persons enjoy the Lemon scent of *Aloysia* (or *Lippia*) *citriodora*, known as the Sweet-scented Verbena, while others would vote for the familiar Musk. The flowers of the elegant *Boronia megastigma* diffuse a delightful perfume, but it would be a feat of skill to grow the plant well in the window.

Vine Border Unsatisfactory (Deeside).—You have adopted the best possible methods under the circumstances, the manure and loam you have used will attract roots near the surface. As the border is very close, and likely to become sour, you may apply a dressing of basic slag phosphate at the rate of 14 lbs. per rod in your case, which being half lime will tend to correct the sourness, while the other constituents will act beneficially as manure. It would not be advisable to use cow manure, but a light mulching of rather fresh horse droppings or short stable manure would prove attractive to the roots, and be a great aid in keeping them active, assuming they are secured in the top-dressing of loam. About an inch thickness, however, would be sufficient, and as the manure becomes wasted fresh additions could be made as required, it being necessary to add a little fresh material occasionally to act beneficially, and at the same time not deprive the soil of the influences of warmth and air.

Raising Asparagus Plants (A. P. G.).—The way we have raised Asparagus for planting at one year old, which are the best for general purposes, is to sow the seeds in drills 1 inch deep, allowing 9 inches distance between them, and leaving out every sixth row to form an alley, which is very desirable and convenient for cleaning. The seeds are best placed in the rows singly about 1 inch apart, or when they are plump and new they may be placed 3 inches asunder, as when every seed grows the plants are quite thick enough, otherwise it is desirable to thin the seedlings to that distance, for the stronger the plants the better will they be rooted and suitable for transplanting. The ground should be thoroughly clean and stirred to a depth of at least 1 foot, being well worked so as to secure a good tilth, and if manure is used it should be well decayed. The chief thing is to keep the ground clean, allow the plants a fair amount of room, so as to secure a sturdy growth and abundance of roots for safe transplantation and speedy growth afterwards. If a large number of plants be wanted the drills may be 6 inches apart, thinning the seedlings to 3 inches distance. This will give more plants per area, but they will not be so strong, and if you want the finest possible plants, which are the best and most profitable in the long run, sow in drills 9 inches apart, and thin the seedlings to 6 inches asunder in the rows, or thereabouts, leaving the strongest. The proper time to sow the seeds is during the first fortnight of April, or as soon afterwards as the weather is favourable.

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Journal of Horticulture.

THURSDAY, MARCH 14, 1895.

AVENUE PLANTING.

REVERENCE begotten of dignity and associations with the past is the feeling which prevails when viewing a noble avenue forming the approach to some "stately home." Probably not any form of planting is able to convey so much of calm repose to the critical eye as this; and possibly not any is more open to criticism nor more deserving of deliberation should it fall to one's lot to arrange similar work.

Planting an avenue on the larger scale does not allow of a margin for errors, whether of space, position, or variety. The designer of such needs a clearness of vision and of sufficient power to see far into futurity; for of all work that which is tested by time is the most severely tried. There is a greater danger in our day—although so frequently admonished as to the need of looking ahead—of being too near-sighted to see into the remote future, for there are many things now crowding into our lives to obstruct the distant view. All the necessary rules for our guidance in planting an avenue are to be found in perfect examples of their kind, yet not so those errors which it is desirous to know in order to avoid; for the more serious has been the defect the more certain has been the doom. Trees unsuited to the locality have succumbed, or injudicious arrangement at planting has been a growing evil until swept away by necessity. Better so than remain the silent witness of error.

In the first place it is essential that the trees should consist of one variety only. Alternate planting of distinct varieties results in architectural incongruity. Formality where employed should be in its best form. The selection of a variety to which the locality is pre-eminently adapted must not be overlooked. It is the key to success. In observing the trees of the neighbourhood they will tell their own tale of what to plant and what to avoid. Should taste or fancy prompt the introduction of kinds practically new to the locality, due weight should be given to the consideration that the work must then be more or less experimental. In the more prominent or important positions this phase of planting will seldom allow of its taking the form of an experiment.

No. 2424.—VOL. XCII., OLD SERIES.

Prudential Assurance Company

LIMITED.

Chief Office: HOLBORN BARS, LONDON.

Summary of the Report presented at the Forty-sixth Annual Meeting, held on 7th March, 1895.

ORDINARY BRANCH.—The number of Policies issued during the year was 61,744, assuring the sum of £6,282,120, and producing a New Annual Premium Income of £339,957.

The Premiums received during the year were £2,077,956, being an increase of £223,586 over the year 1893.

The Claims of the year amounted to £518,131.

The number of Deaths was 3,584, and 198 Endowment Assurances matured.

The number of Policies in force at the end of the year was 375,545.

INDUSTRIAL BRANCH.—The Premiums received during the year were £4,244,224, being an increase of £272,360.

The claims of the year amounted to £1,548,377. The number of Deaths was 168,689, and 1,304 Endowment Assurances matured.

The number of Free Policies granted during the year to those Policyholders of five years' standing, who desired to discontinue their payments was 66,478, the number in force being 398,078. The number of Free Policies which became Claims during the year was 6,672.

The total number of Policies in force at the end of the year was 11,176,661; their average duration is nearly seven and a half years.

The Assets of the Company, in both branches, as shown in the Balance Sheet, are £21,213,805, being an increase of £2,674,940 over those of 1893. A supplement showing in detail the various investments is published with this Report.

The Balance Sheet has been submitted to Messrs. Deloitte, Dever, Griffiths & Co., whose certificate is appended to the accounts.

THOS. C. DEWEY,
WILLIAM HUGHES, } *Managers.*

W. J. LANCASTER, *Secretary.*

The full Report can be obtained upon application to the Secretary

No. 768.—VOL. XXX., THIRD SERIES.

Avenues may be divided into two classes—those which ornament the road or carriage drive, and those which have no secondary object, but are planted in some portion of the demesne where the greensward takes the place of the road. For the former, which one may designate the principal type of avenue, deciduous trees appear preferable, as foliage retained through the winter is not conducive of dryness nor light desirable to a good carriage road during that season. For this purpose specimens of our noblest timber trees are second to none as types of beauty. There is not, I think, any reason for drawing comparisons between their grandeur of form on the one hand with the more graceful habit of the Coniferæ.

A common mistake is that made by the planter failing to realise what the trees will become, and what they should attain in their prime. It is a far cry in a tree's life from infancy to old age, and too often is future effect sacrificed to present appearance. Should choice fall on such trees as the Beech, Oak, Elm, or Ash by reason of the suitability of any one of them being illustrated in the vicinity, the selection of a specimen will be a reliable guide for the space ultimately required in the avenue. Ample width is of the first importance. With a carriage road of some 30 feet wide and up to or exceeding a quarter of a mile in length, from 25 to 30 feet may be allowed from the margin of the road to the tree stems; but should the road be curtailed in length some reduction in width is necessary, for in this instance we have no perspective to tone into harmony. It may be readily allowed that a perfect avenue is one in which each tree is a perfect specimen, and that sufficient room is allowed for such attainment, hence the requisite space from tree to tree will be double that from the stem to the margin of the road. Probably in but few places is so much room as this I advise allowed, but certainly in but few places is the ideal avenue to be found.

On the smaller scale, where space is limited, and the immediate surroundings proportionately reduced, very pleasing effects are obtained from lesser growing trees or even shrubs. Here dignity gives way to beauty, and should some of our fruit trees grown as standards be employed, profit may thereby be added. In this class of avenue the Lombardy Poplar has formerly been much employed, but I think there are but few instances in which the impressions it gives are wholly satisfactory. Thus used, it often results in a Venetian mast-like arrangement, and may be defined as height without breadth.

In the greater variety of evergreen trees and the larger scope admissible in those avenues through the woodland or other parts of a demesne, the planter can work with a freer hand; yet, instances may be noted in which cultural taste has been sacrificed to arboricultural energy. Avenues which have survived sufficiently long to excite feelings of pity where nought but admiration should prevail. Temptations now beset planters that were unknown to a former generation in the graceful and elegant, recently introduced Coniferæ. We may receive a great deal of pleasure in watching their development year by year, but the keener is the disappointment felt should a season of abnormal severity deal disastrously with them. The possibility of such a catastrophe should lead to exhaustive inquiry into the character of these trees with some knowledge of the habits they will eventually develop; for, some at least, in their prime will lose the elegance of character displayed in youth. The Deodar is an example of the change of habit with age.

In a limestone country the Silver Fir family are very satisfactory in their behaviour, acquiring an ultra-glaucous hue, of which *P. nobilis* is a prominent example. Avenues of this description possess an advantage over the carriage road avenue, as they are invariably backed up by a depth of miscellaneous planting, serving as protection. In damp, low-lying situations, the Hemlock Spruce (*A. canadensis*) thrives, and forms a handsome feathery-headed tree. It also has the advantage of being somewhat uncommon in the British Isles.

The English Yew is well adapted to the more confined space of a shrubbery. In noting the planting at a once celebrated place, which afforded abundant examples of what to plant and what to avoid, an avenue of *Araucaria imbricata*, crippled and denuded, gave rise to the reflection that had the English Yew been thus employed, each succeeding generation would have enjoyed increased antiquity till such time as Macaulay's New Zealander might admire, and, admiring, turn a kindly thought to the then remoteness of our own times and planters of our day. Haste is not desirable in avenue planting, lest repentance comes at leisure.—E. K., *Dublin*.

A FEW USEFUL PLANTS.

WE might in houses of a permanent nature do more to render them picturesque and attractive. Care is needed in associating plants to produce the most pleasing effect, and at the same time so arrange them that they contrast admirably. Experience is needed before plants can be selected that are certain to do well and grow luxuriantly in the position assigned to them. We have often made mistakes, but generally profit by them. How often in certain houses or positions plants will grow freely enough; but because the house is too warm, or it may be too dry, a little too cold or too moist, they become a prey to insects of one kind or another.

It is intended in these notes to point out a few plants that contrast well, and the positions in which we have found them succeed best. What can be more useful or beautiful in a warm moist house than *Lygodium scandens* planted round the stems of Palms that tower above plants of a dwarfer nature? It is certainly deciduous, but for three parts of the year it is charming, and it is even more beautiful when its slender stems creep naturally amongst the leaves of the Palms and hang gracefully from them. Where the temperature ranges at least 55° to 60° at night and abundance of moisture is maintained it thrives splendidly. In houses that are cooler, say in the conservatory, where the temperature does not range above 50° at night, *Smilax* answers the same purpose, and is quite at home if well syringed and liberally supplied with water. The slender graceful stems of this plant are most useful for table decoration. This plant for a good period of the year will prove ornamental, and if required can be used for the purpose indicated.

For plant houses with one end of brick or stone, with a back wall, or surrounded with fairly high walls, such as a fernery or Palm house, no more useful plant than *Ficus repens* can be found. For covering iron pillars, for creeping up the stems of Palms and Tree Ferns, it is very useful. In warm moist houses *Ficus repens* grows rapidly, and gives very little trouble beyond watering and syringing, but grows best in good soil. It can be clipped annually to keep it within due bounds, but after the walls are once covered it is less stiff in appearance when the shoots are allowed to hang from the wall. In cool houses it will do equally well, only growth is much slower. For associating with *Ficus repens* on walls in warm moist houses *Philodendron pertusum* is very effective with its large handsomely cut foliage. It clings freely to walls, and therefore gives little trouble, but must be well syringed and liberally watered.

Cissus discolor with its beautifully marked foliage is a striking contrast to the *Ficus*, and when once started will secure itself to the wall and ramble in a natural manner. It is most effective over the neat groundwork of green, but should not be allowed to become crowded, or the effect will be destroyed. When taken straight to the top and trained horizontally the lateral growths will hang down, and the colour of the foliage will be seen to greater advantage than when trained in any other way. Another climber that cannot well be dispensed with in a warm house where Palms are employed is *Passiflora princeps*. The shade and moisture induce free growth, which flowers profusely; and the long racemes of bright scarlet flowers hanging above the Palms, or even in some cases hanging amongst them, prove an imposing feature.

Asparagus deflexus in large baskets is charming; its long shoots hang over and completely hide the basket. All the varieties of *Asparagus* delight in being liberally syringed and having abundance of water, providing it is not allowed to stagnate about their roots. Amongst Ferns for the same purpose *Davallia Mooreana* is not to be despised, and the old *Phlebodium aureum* with its glaucous foliage is distinct and pleasing. Few Ferns surpass for baskets in the conservatory *Nephrolepis exaltata*. *N. tuberosa* is also effective. *Microlepia hirta cristata* is at home in the conservatory, and grows with the greatest freedom. For a cool moist hardy fernery *Woodwardia radicans* has no equal, as its large bold fronds droop gracefully. *Dicksonia*

antarctica, although it will grow under the dry atmosphere of the conservatory, soon becomes infested with thrips; in fact, it is difficult to keep clean. In a cold hardy fernery it may be described as "growing like a weed," and is never attacked.

For pillars in large conservatories few plants are more effective or useful than *Asparagus plumosus nanus* and *A. plumosus*. The former certainly grows the more rapidly, but it is questionable if it is the more beautiful. These varieties also do well in baskets, the shoots hanging gracefully over the sides of the baskets. Both are useful plants in a small state, and are easily increased—the first by division, and the latter by cuttings. The soil must be open and porous, and thorough drainage ought to be secured. The plants do well in good loam, leaf mould, manure, sand, or any gritty material. For cutting purposes *Adiantum cuneatum* will eventually have to give place to *A. plumosus* and *A. p. tenuissimus*, which last so much longer. The more these plants are syringed the more luxuriantly they appear to grow. The plants bear feeding liberally, and soon show their appreciation by luxuriant growth if the right kind of chemical manure is used. In large houses it would be difficult to conceive a more pleasing effect than the pillars or supports of the roof covered with *Asparagus*, and the roof itself with *Cobæa scandens variegata* and *Tacsonia Van Volxemi*. The shoots must hang down at various lengths, to give the best effect that it is possible to obtain.

These are but a few of the many plants that can be used for grouping and effective purposes in houses of a permanent nature, though many have had to be omitted that may in the opinions of others be deserving of mention by them in these columns.—WM. BARDNEY.



CYPRIPEDIUM GODSEFFIANUM.

WHEN a plant of this *Cypripedium* was exhibited by Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, at the Drill Hall, Westminster, S.W., an award of merit was adjudged for it by the Orchid Committee of the Royal Horticultural Society. It is said to be the result of a cross between *C. villosum* Boxall and *C. hirsutissimum*, the former being the pollen parent. The dorsal sepal is a dark shining brown with a green margin, the petals being reddish purple spotted brown; the lip is a pale purplish shade. Fig. 40 represents a flower of this *Cypripedium*.

LÆLIA CINNABARINA.

THE paragraph referring to *Lælia cinnabarina* at page 201 of your last issue has surely not done justice to the flowering capabilities of this distinct and beautiful Orchid. It is there described as bearing from six to ten flowers. If this is really the usual number of flowers borne on a spike we must be in possession of a more floriferous variety. I have a spike here showing eighteen flowers and buds; those open are of a beautiful orange scarlet, equal in colour to *harpophylla*, but larger flowers than this species. I find it more suited for pot culture than baskets. It also requires careful watering when the young growths are showing.—J. EASTER, Nostell Priory Gardens.

DENDROBIUM AINSWORTHII.

THE great charm of this Orchid lies in the contrast between the pure white sepals and petals with the richly marked lip, and although the variety *roseum* is a magnificent flower it cannot in my opinion compare with the type for beauty. This variety has bright rosy magenta sepals and petals, and both were raised in the collection of the late Dr. Ainsworth by crossing *D. nobile* with *D. heterocarpum*. It is similar in habit and shape of the flowers to the former kind, and thrives under similar conditions of culture.—H. R. R.

CŒLOGYNE LAMELLATA.

THIS distinct *Cœlogyne* was sent by Messrs. F. Sander & Co. to Kew in August last, with the information that it was received from a gentleman whose name and address have been unfortunately mislaid. It is the second species known from the New Hebrides the earlier one being *C. M'Donaldii*, F. Muell. and Kränz. in "Ester. Bot. Zeitschr.," xliv., page 209, which is obviously allied to the present one, though the sepals are not described as keeled, the keels of the lip only five, the sepals and petals as having some dusky spots, and the lip yellowish flesh colour. The present species has the sepals, petals, and column uniformly pale whitish-

green, and the lip white. Almost the whole lip is corrugated. The lower half of the front lobe bears five strongly corrugated keels, which extend to the base of the lip, while along the side lobes four additional ones extend, two on either side. The next two pairs of nerves on either hand also bear a number of tubercle-like swellings.—("Kew Bulletin.")

ANGRÆCUM SESQUIPEDALE.

THIS Orchid has now become so common that it is found in almost every collection of this class of plants. Perhaps no Orchid ever caused such a sensation as this when it was introduced, and it has since become famous. It is one of the Orchids Darwin was especially interested in on account of the exceptional length of the spur, and a plant in bloom always attracts attention.

This wonderful *Angræcum* was found in Madagascar by a French botanist near the close of the last century, and when the history of the plants of Madagascar was published in 1822 *Angræcum sesquipedale* became known to science. Botanists and horticulturists were anxious to introduce it, and many attempts were



FIG. 40.

CYPRIPEDIUM GODSEFFIANUM.

made, but these were not successful until 1855. Mr. Ellis, a missionary in Madagascar, was fortunate to bring home three living specimens to his garden, where one of them flowered in the spring of 1857. There was still great difficulty in reintroducing the plant, and for many years it was rare and expensive. In its native country it is said to grow on the trunks and branches of trees, where it has abundant light and air, and in the hottest and lowest districts.

The flowers are produced on peduncles 10 to 12 inches long. When they first appear they are green, and this colour continues until the flowers are almost fully developed, when it turns to an ivory white. As the flowers begin to fade they become pale yellow. The flowers are not very fragrant during the day, but at night they have a strong odour, which is not very pleasing. The colour and the fragrance of the flowers at night indicate that they are then fertilised by an insect in its native home. My plant had sixteen large flowers fully developed at one time; these measured 6 inches across, and the spurs were 12½ inches long.

The plant is easy to cultivate. It requires a strong moist heat, and is grown in the stove. It also requires abundance of light, but must be shaded from strong sunlight during the summer. It grows well planted in a basket with crocks and sphagnum moss, and suspended near the roof glass. Water must be given during the

entire year, and to keep down insect pests the plant must be frequently sponged.

Another large *Angræcum* in bloom now is *A. eburneum*. It is a large strong-growing plant, with thick, leathery, strap-shaped leaves. The flowers, although not as large as some of the other species, are produced plentifully on nearly erect flower spikes. The petals and sepals are narrow and green, and the lip cordate and pure white. The flowers are very fragrant, and last for nearly two months. It requires the same treatment as *A. sesquipedale*. It was introduced from Madagascar in 1826.—ROBERT CAMERON (in "Garden and Forest").

EXPERIENCE IN SUMMER ROOT-PRUNING.

I FEEL sure that it would be interesting to readers of the *Journal of Horticulture* to learn on what grounds the local gardeners and amateurs at their meeting (see page 183) arrived at this strange conclusion—"root-prune in the summer if you wish to kill your trees." I have read papers on this subject at horticultural improvement associations several times during the last fifteen years—at Edinburgh twice, and the enthusiastic savants of the North discussed the matter freely, but none of them, with the sweeping confidence of the Society indicated, volunteered to denounce the practice. I have had much to do with horticultural societies whose object is mutual improvement, and it is surprising to note how readily crude and untenable ideas are adduced. The question of root-pruning is somewhat vague, but "root destruction" is very different from judicious "lifting and pruning." In my youthful days, when I could not practise as I would, I conceived the theories of root-pruning which I have, over a course of thirty years, verified by careful practice. After practising root-pruning for a number of years, between June and September, I now and anon received some censure from the non-experienced in such matters, but had my faith in the practice strengthened by reading of the methods of a distinguished market grower, who examined his trees early in June, mostly Apples, Pears, and Plums, and those which showed any tendency to grossness of growth and unfruitfulness were manipulated at the roots at once. I never heard of the *modus operandi* which this reputed grower of fine trees and immense crops of fine fruit followed, but I did not alter my course which I had followed during so many years. If I lifted unfruitful tree roots in June it was generally at one side first, examining those under the bole of the tree. Any going straight down were removed, lime rubbish or some comeatable material was placed to prevent further mischief in that direction; outward growing fibreless roots were shortened, and those uncovered were replanted in good loam and made firm. Perhaps, when needful, the other side of the tree would be treated in the same manner during August. No growth was made after this during that season, but the wood became firm and spurs were formed; the foliage remained late on the branches, and maturation seemed perfected. Invariably the crop of the following year was excellent. We expect this year of scarcity to have Seaton House, Sandringham (also a capital bearer), Northern Greening Apples, and some others till May in good condition, from old trees hollow in the trunk, some trunks repaired with wood from other trees, rendered dwarf by root and top pruning a dozen years ago. The Seaton House trees, I believe, were planted during the last century.

Young trees are root-pruned or lifted, as may be necessary, to keep them at the size desired, thus avoiding the use of the knife to branches, and having ruthlessly to cut off shoots during the growing season, a practice only conducive to canker in fruit trees. My earliest experience of root-pruning was in Wiltshire and Suffolk while a mere "fledgling," but I have since then practised in other parts of England and in Scotland. In no case have I seen other than the best results from pruning roots as indicated, always gaining a season by getting the trees to rest early in autumn, quite recuperated and fruitful the first year. Piecemeal pruning twice or thrice is what I have confidence in.

As to the work being injurious in the long run, I can only say that trees which have been operated on many years ago are sound, healthy, and fruitful now. Some three years ago I saw a number of Plums on a wall in one of the largest of English gardens which I root-pruned during July, twenty-one ago. They were healthy and fruitful; and to use one other argument, I will refer to Apples, Pears, Plums, Cherries, on walls and in the open ground, which were root-pruned during summer to keep them to a proper size. Reference has been made to them in this and other journals as to their productiveness, and I suppose, after being under well known skilful management since I left them over a dozen years ago, they are likely to be in good condition now. The first year after the trees were planted I unfortunately gave a mulching of well decayed manure which had been swept from streets where salt was carted

daily and dropped about. The manure was stored in quantity before my arrival on the place. This gave a severe check to the trees. Vines and Peach trees under glass were severely dealt with from the same cause.

The trees started to grow in the garden the second year on walls (which were not quite finished by the builder), all making roots long and fibreless, and to counteract this I root-pruned moderately during summer and autumn. The fourth year the walls were covered with branches. Pyramids and standards were also in very promising condition, bearing abundance of fruit. They were reported in "Gardener's Chronicle" the fifth season, which described them as having the fruit (Pears especially) "hanging like ropes of Onions." Each season they improved to my heart's content. The soil was a strong loam mixed with a quantity of marl quite free from manure (except the mulching). In this soil I thinned out of the thickets thousands of trees and shrubs to form the park and ground establishment, and they all grew in the strong soil such as I never had seen plants do before. This was at Impney in Worcestershire. I may add that shrubs were also periodically treated, lifted to keep them dwarf, and I still pursue the same course with choice shrubs (to save the use of the knife) regardless of dates or seasons.—M. TEMPLE, *Carron, Stirlingshire*.

[We commend the above article to our correspondent "H. C." (page 183) as possibly worthy of reading and discussion at a meeting of the "local Gardeners' Society" with which he is connected. We have seen the trees at Impney, and they have been admirably managed from the beginning until now. Instead of having been "killed" by root-pruning the fruits from them have won prizes at some of our best exhibitions. Perhaps "H. C." will favour us with a note on any further discussion on the subject that may ensue at the meeting.]

ALPINE FLOWERS.

MAKING AND PLANTING ROCKERIES.

It can hardly be gainsaid that the cultivation of what are known as Alpines is largely on the increase. It is doubtful, however, if the increased interest taken in these charming flowers is at all proportionate to the development of floriculture generally. This is to some extent due to the fact that alpine flowers are neither so showy individually nor so well adapted for cutting as the more striking blooms of larger growth. While this is so it is no rare occurrence to see the ranks of growers of alpines recruited from the great body of flower lovers by the addition of some whose admiration for the subjects of Flora has taught them to appreciate the more minute beauty of these alpine flowers. It is far more seldom, however, that one sees the alpine grower deserting his favourites for more brilliant beauties; and when this takes place we conclude he has been the victim of some untoward circumstances, or that at the outset some initial difficulties have seemed too great to be overcome.

There is no royal road which leads to success in the cultivation of alpines, and each one has to learn for himself the cause of failure in his own garden; but there are certain things which inevitably lead to success or failure, and among these may be pointed out the construction of the rockwork on which the plants are intended to be grown. It was hopeless to expect the tide of favour for alpines to flow rapidly so long as their cultivation was almost entirely attempted in pots, but it is to be feared that many who experimented with the same plants on rockwork quickly discovered that they had only exchanged Scylla for Charybdis. When grown in pots plants which in nature ramble happily over stones and send their roots far into the crevices of the rocks were "cabin'd, cribb'd, confined" until their life energies became exhausted, and they either dwindled away or dragged out a miserable existence. Worse, perhaps, was the fate of those which were placed on some of the pretentious, or even unpretentious, structures called rockeries which were reared in too many gardens.

Those who are at all familiar with gardening books must have seen in some of those published about the middle of this century some wonderful rockeries on which plants were expected to live and be happy. One must not, however, be too severe on the writers of former days, for although such monstrosities are no longer advocated it is only too true that they are frequently erected. It is difficult for an admirer of these exquisite flowers to write calmly about such rockeries as have been referred to, the very act of writing seems to make one desirous of giving vent to indignation at the folly which condemns so many beautiful plants to an untimely and an unhappy death. Many rockeries have been and are built of a pile of stones without a particle of earth between, and only a thin coating on the surface. Others are composed of a

good proportion of soil, but are so steep that the life-giving moisture runs off as from the roof of a house. Still worse than these, however, are more expensive and pretentious structures built of solid stone or brick and mortar, and without a proper crevice into which a plant struggling for existence can insinuate a root to keep it alive.

A primary essential in the construction of a rockery is a good body of soil. With this stones may be mingled, but there should be no crevices between these which are not filled with earth. In actual practice there are two ways of forming a rockery of this kind, one being to make the mound of earth first, the other to place the soil in position as the building progresses. If, however, the mound can be made first and given a little time to settle, there is less fear of subsidence and consequent displacement of the stones. Its height will depend on the position it occupies, but there is, as a rule, no necessity for its being of great elevation; indeed many alpine will thrive to perfection in a bed only slightly raised above the surface. For several reasons it is desirable that the rockwork should have an irregular outline, having here and there little nooks by means of which shelter or shade may be given to plants requiring special attention in this way. This irregularity of outline adds much to the natural appearance, which is a desideratum in constructions of this kind.

The general form of the rockwork having been decided on and the mound of soil placed in position, the stones may be laid in their places, and here it may be well to say a few words about the most desirable material to use; this is not always available, and often we have to depend on the plants and the modifying influences of time to take away the unsightliness of the slag, bricks, or other artificial looking substances. Personally I do not like a rockery composed of granite, which for some years retains its "new" look, and, besides too often taking from the appearance of the colours of the flowers, is not porous enough to induce the plants to cling to it with their roots. Limestone, when it is not too soft, is suitable and harmonises well with the majority of the plants, but I prefer a grey sandstone which soon becomes weather-stained and from its porousness absorbs moisture, and to which the plants seem to love to cling.—S. ARNOTT.

(To be continued.)

THE DIFFICULTIES OF SPRING BEDDING.

SPRING bedding is an attractive and delightful aspect of gardening, for when the welcome sunshine begins, after a long absence, to shed its warmth upon us, it is refreshing and cheering to watch the tender leaves and flowers unfold their pristine beauty. But there is unfortunately a dark side to the picture which we have to face—after severe winters—before the contemplated effect can be secured, indeed in some instances the precise effect we have in our mind's eye when planting is destined to remain a vision only. I fear there are innumerable cases in which such will be the case this year.

The abnormally severe frosts recently experienced have wrought terrible havoc in flower gardens where spring bedding is carried out. Many Wallflowers, which are generally regarded as perfectly hardy, have been killed outright. The only types that, with us, have come through the ordeal fairly well are all dwarf; these being only about 6 inches in height, were to a great extent protected by snow, which unfortunately was not of sufficient depth to save those of ordinary types. This ought to be kept in view when sowing seeds to provide plants for next year's bedding; indeed, I think dwarf Wallflowers will before long quite supersede those of the Belvoir Castle and Harbinger types where formal beds have to be filled. *Myosotis dissitiflora* is usually a splendid plant for bedding, as it is much more compact in growth and produces larger flowers than the common form; but unfortunately it is more tender, and judging from present appearances quite half of our plants will succumb. Among the *Aubrietias* there is also a great loss. This generally occurs on the sunny side of the beds, which is doubtless due to the fact that the sun thawed the snow and left the plants exposed to succeeding frosts. *Saponaria calabrica* has proved quite a failure, every plant being killed.

Violas seem to have come through the ordeal by far the best. Young plants set out early in November are quite uninjured; old ones divided and replanted at the same time have not escaped so well, as the centres of the plants are much injured, doubtless because the young growths were somewhat tender. *Silene pendula compacta* has suffered but little, the edges of the leaves being browned, but the hearts of the plants are quite sound.

Anemones of the French and fulgens types are untouched.

The leaves were pushing through the soil just before the snow came, and it seems to have afforded them ample protection. It is during such seasons as this that the value of mixed borders and rockeries is apparent, for many varieties of plants which in the flower garden are ruined, in borders quite as much exposed are but little injured. This, of course, is easily accounted for in this way—border plants are usually left undisturbed throughout the year, whereas those employed for spring bedding in the flower garden proper have to be lifted from their summer quarters and transferred to the flower beds during the autumn, and all gardeners know that the effect of frost on plants or shrubs that have been recently disturbed is much more serious than on others of the same species and varieties whose roots are well established in the soil. Many will, I fear, this year have a forcible lesson taught them in this respect, for where the planting of shrubs was deferred till December last disaster is already apparent.

But I am digressing somewhat from the heading of my notes, so let me return to the subject proper. Perhaps there are many who will be disheartened to see their autumn preparations rendered futile, and will in consequence be inclined to discontinue their attempts at spring bedding, for I remember a reaction of this kind took place a few years ago after a series of severe winters. This, I think, is scarcely the spirit in which to meet the case, and, according to the law of averages, is quite the wrong thing to do at the present climax, for after many hard winters we may reasonably look forward to some milder ones.

All may, however, do much toward rendering failure less likely in the future by making a rigid selection of only such plants as are but little affected by our severest winters. We may then in time carry this selection of the fittest to a point approaching so nearly to perfection as to leave us practically indifferent in this matter to severe winters. Another point to which special attention ought to be given in the future is the oft repeated one—plant early in the autumn. No matter how mild the month of October may be, or how well the summer bedding may look even then, we ought not to be beguiled into a sense of security by appearances, but as soon as October comes round clear the flower beds with no unsparing hand. Then go at the work with energy; manure, dig, and replant as soon as possible, so as to have all planting completed by the end of the month, or if it is found impossible to do this let the planting of the more tender kinds stand over till the spring. This, however, is not a desirable practice on light soils, as the plants suffer should a dry period follow, and there is usually too great a pressure of work in most gardens during the spring months. Cocoa-nut fibre refuse or sifted leaf soil if spread on the ground after planting in the autumn would do much towards protecting the roots of plants from frost.

There is one other way in which a good display may be unfailingly secured—namely, by employing bulbs largely. Unfortunately but few gardeners are able to spend a sufficient sum annually for this purpose, and there is no other way in which such a feast of brilliant colour can be obtained simultaneously during the spring months.—H. D.

DAHLIAS.

WHILST a few persons relatively are still interested in Dahlias as florists' flowers, tens of thousands who have gardens love them for their intrinsic beauty as decorative flowers. That is a very different state of things to what existed some twenty years ago, when the Dahlia had both for exhibition and for garden decoration got into very low water indeed. That the National Dahlia Society has done much to help resuscitate a once greatly favoured flower there can be no doubt; and for all it has accomplished it is entitled to the fullest credit. But to numbers of persons the Dahlia owes its popularity more to the introduction into gardens of the beautiful Cactus and single forms than to any mere exhibition merits. No doubt to day the Cactus section is by far the most popular of all, and flowers of the refined varieties rank amongst the most charming of double flowers in cultivation. It is well, therefore, to give to these non-florists' forms that credit which they so much deserve.

The show and fancy sections it is evident have almost, if not quite, attained to their fullest excellence. They show in the best of seedlings very little of advance; indeed, beyond diverse colours or markings it is doubtful whether any real advance from the florists' aspect has been seen in show Dahlias for several years, and it is very difficult to show in what direction farther advance is possible. But whatever may come the blooms will still be large, rounded, massive, and to use a common term, lumpy, at least that is the description frequently applied by those who seek for other forms of elegance and beauty than is found in mere solidity and rotundity. These show and fancy Dahlias, however, have their

admirers, and those who like them can grow, show, and enjoy them. There is in horticulture such wide room for all sorts of tastes that it would be stupid to complain because some found more of pleasure in growing big-flowered double Dahlias than in more elegant forms.

Those who want Dahlias to give colour and gaiety in gardens can hardly do better than grow the Pompon forms, for these are of all the sections the most floriferous. If there be partiality for smallish solid rotund flowers, then these are admirable, too, for cutting. For sale in bunches they are much esteemed, and a few dozens of plants, if of some half dozen of the most pleasing colours, will furnish during the season an immense number of blooms. But for house decoration in a cut state no Dahlias can excel the charming single blooms or the quaint and singularly graceful Cactus varieties. The Pompon forms show little advance; they are almost as good as they can be. The singles also seem to have reached the end of their tether. The flat-petalled round form to which this section speedily attained remains as before, and perhaps it is rather from some sort of revulsion from that round form of flower that a strain called single Cactus Dahlias have been created. At present the best that can be said for these is that they are floral abortions. Not very high praise that; but it is not possible for any person of taste to discover in them so far elements of beauty or attractiveness. Until they develop into semi-double forms there is little hope for them, and even then they will be but inferior examples of the Cactus strain, of which in true doubles we have now such singularly beautiful varieties.

It is almost exclusively in the Cactus section that there is real development. We started with these somewhat coarsely, and ran off into a flat-petalled section that since has been termed decorative, an elastic term, but not out of place, as most of this strain make very effective garden flowers. But the true Cactus ideal so admirably set in the Mexican Juarezi was very largely departed from for some time, and it is only within the past few years that we have got back to the right track and even beyond in elegance and refinement what Juarezi furnished. We may well expect, now that such beauty has been attained, raisers will set themselves to improve the habit of growth which has so far largely characterised the Cactus strain. That process has gone on somewhat liberally so far as other sections are concerned, and the more popular Cactus forms may now follow suit. If we can obtain plants some 2½ to 3 feet in height, carrying flowers as profusely as do the Pompons, and of the most perfect and refined Cactus form, then we shall indeed have made great advance. Some development in that direction has already been seen, and no doubt in a year or two there will be many others of similar dwarfed free-blooming characteristics.

It is yet a far cry to the season of Dahlia flowers, but we are full into the season of propagation. Where ordinary prudence prevailed roots were effectually stored, and the severe frost left them unharmed. No doubt in many directions Dahlia roots have gone the way of Potatoes, being frosted and destroyed, but in the nurseries growths are now being pushed on in warmth, and young plants produced in myriads against the demand that seems likely to be unusually large this spring. In any small garden the same practice should prevail. It is well to make an early start in Dahlia propagation, because not only are much stronger plants for putting out at the end of May thus secured, but many more of them can be had also. Those who cannot propagate from lack of stock roots should send their orders to the florists early, and that will entitle them to demand strong, matured plants in due course. Too often the purchaser has to put up with ill-rooted and immature plants that come direct from cutting pots and heat. These are not at all creditable for any trader to send out, and if, as some untutored persons will do, are planted outdoors at once, they almost assuredly die; or if they be as advised, placed singly in small pots, and stood in a frame, they are even then hardly fit to put outdoors until some three weeks after receipt. Very likely the blame rests chiefly with the purchaser who left his ordering too late, but it should even then not all fall on his shoulders.

It is best where practicable to have young plants sent in their pots, or if the pots be omitted then each ball of soil should be carefully wrapped in soft paper before packing. When received these plants should be placed in pots one size larger than rooted in, be stood in a frame or greenhouse for a week or so, then put outdoors into a warm place, where they can be protected at night for yet another week or so, and then they may be planted safely, because so well rooted and hardened. Those who may prefer to root their own can purchase cuttings now cheaply, but some bottom heat is essential for that purpose. Howsoever obtained, it is desired not only that there may be for all the fullest success, but that Dahlias may once more testify that they are of the most beautiful of garden flowers.—D.



EVENTS OF THE WEEK.—The events of interest to horticulturists are now becoming more numerous, as during the next week the Crystal Palace Co. will hold its first spring show on Saturday, March 16th; the Reading Horticultural Society a bulb show on Tuesday, March 19th, and the Royal Botanical Society an early spring show on Wednesday, March 20th.

— **WEATHER IN LONDON.**—Pleasant changes in the weather have taken place during the past week. Rain fell on Saturday last, but with this exception bright sunny days have predominated. On Wednesday morning the weather though bright is somewhat colder, the thermometer in the City registering 38°.

— **THE WEATHER IN THE NORTH.**—Thaw has, with an occasional slight frost in the morning, been continuous during the past week, but has as yet penetrated only a few inches into the soil. The days have been generally cold with N.E. winds. On Sunday the surrounding hills had another coating of snow, and there was a threatening of more on Tuesday morning. Snowdrops are coming into bloom, and Auriculas have made a distinct start.—B. D., *S. Perthshire*.

— **DEATH OF MR. R. B. LAIRD.**—It is with very deep regret that we have to announce the demise of this well known and highly respected horticulturist, which occurred on the 4th inst. at the age of sixty-nine years. The deceased was a member of the firm of Downie and Laird of Edinburgh, and subsequently senior member of the old established house of Laird & Sinclair, Dundee. He was a man of the greatest geniality, and will long be remembered by gardeners and nurserymen throughout the kingdom.

— **COOKING APPLES.**—Mr. T. Francis Rivers has been testing the cooking qualities of certain Apples. From his records prior to last year we note that he found Belle de Pontoise and Calville Blanche excellent in February; Wadhurst Pippin, Gooseberry Apple, and Dumelow's Seedling very good in March; but Rhode Island Greening insipid; Calville St. Sauveur and Bramley's Seedling very good in April; Striped Beefing in May. Last October Rivers' Codlin was found excellent, and it is equally good now. Bismarck is still in good cooking condition, but the flavour is insipid.

— **DEATH OF MR. THOMAS GADD.**—Another gardener of the old school passed away on March 7th at the ripe old age of ninety-one. Mr. Thomas Gadd was well known in Sussex, he having been a large prize-taker at the Brighton and other large horticultural shows. He filled some important situations in the county, the last twenty-seven years of his work being at Denne Park, near Horsham. In March, 1876, exactly nineteen years ago, he was allowed to retire on a substantial pension, kindly granted him by his employers, Mr. and Mrs. C. G. Eversfield, by whom he was much respected.—H. H.

— **ELECTRO-CULTURE.**—The members of the Wolverhampton Gardeners' Mutual Improvement Society met recently, when an interesting lecture was delivered by Mr. G. W. Fairall on electro-culture. The lecturer, in order that his hearers might better understand the subject, gave a brief yet clear and sufficient survey of the history and progress of electricity, emphasising the notable developments made in its application to industry and art. Coming to the subject of the lecture, and dealing with it exclusively, the lecturer, himself a successful horticulturist, stated that so far back as ten years ago he had made experiments on Lettuces, Tomatoes, and other vegetables with the object of ascertaining the value of electricity as an agent in the cultivation of plant life. Although the results of his own experiments were eminently satisfactory, as also those of other and more favoured investigators, it would be unwise to generalise too prematurely on the value and extent of that form of assisted cultivation. Scientists, the lecturer said, were never justified in asserting, generally and positively, conclusions arrived at by the examination of single or few cases under certain and limited conditions. The lecturer dealt in detail with his experiments, and said that electricity could be applied successfully in many cases to the cultivation of plant life, and his position with regard to electro-culture was one of hope for the future, although as yet sufficient and satisfactory data were not known to enable one to generalise with freedom.

— **CAPE FRUIT.**—R.M.S. "Scot" arrived at Southampton with 726 boxes of fruit, consisting of Grapes, Tomatoes, Apples, Pears, Chilies, and Gooseberries.

— **ISLE OF WIGHT HORTICULTURAL IMPROVEMENT ASSOCIATION.**—Dr. Groves, J.P., presided at the last monthly meeting of this Society, when Mr. Barkham read a paper on "The General Cultivation of the Vine," and which proved to be most interesting and instructive.

— **THE NATIONAL DAHLIA SOCIETY** held its annual meeting at the Hotel Windsor on the 7th inst., E. Mawley, Esq., in the chair. Among other business transacted, the meeting, in consequence of the small balance in hand—8s. 6d.—decided to reduce the prizes in several classes to the extent of about £10.

— **ROYAL METEOROLOGICAL SOCIETY.**—At the ordinary meeting of this Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 20th inst., at 7.30 P.M., a lecture will be given by Mr. W. N. Shaw, F.R.S., on "The Motion of Clouds Considered with Reference to their Mode of Formation," which will be illustrated by experiments.

— **CUCUMBERS DAMPING.**—Observations indicate that this affection is caused by the fungus *Pythium De Baryanum*, *Hesse*, which is known to produce the same effect in Europe on the assumption that this fungus is the cause of the trouble. Plants affected should be at once removed, with the soil immediately surrounding them, and burned. If this is done as soon as the seedling falls the trouble can be held in check, since the fungus will be destroyed before its productive organs have developed.

— **A LOCUST PLAGUE.**—In about two days the Indian corn in the Usambara country was devastated by locusts, and a missionary at Magila states that there is not an undevoured corn field within thirty miles of his residence, and unless help is forthcoming from England the Boudei people will die of starvation, for the *Imigiva* root crop is exhausted and the Cassava will not be ready for several months. The rice at the mission stations at Magila and Hologwe has prevented the starvation of many, but it cannot last long, and many deaths are inevitable. The missions have never previously experienced such a scarcity of food.

— **ANALYSIS OF THE TULIP.**—Mr. Edmund Tonks obliges with the following information in reply to "W. J. P." (page 196):—Dr. Emil Wolff, in his *Aschen Analysen* (Berlin, 1871), gives us the analysis of *Tulipa Gesneriana*, which is the parent of the larger proportion of cultivated Tulips:—Potash, as KO, 34.90; soda, as NaO, 1.02; lime, as CaO, 20.85; magnesia, as MgO, 10.76; iron, as Fe₂O₃, 1.13; phosphorus, as PO₅, 8.06; sulphur, as SO₃, 3.36; silicon, as SiO₂, 8.51; chlorine, as Cl, 1.17. This indicates that a soil in which Tulips are to be cultivated successfully should contain sufficient potash, lime, magnesia, phosphorus, and sand, and some of these may have to be supplied artificially. Most soils contain sufficient of the other ingredients.

— **THE EFFECTS OF LIGHT ON PLANTS.**—Professor Wollny states that yellow light has the greatest power of producing organic substances in plants; red comes next in power, while blue has a remarkably prejudicial effect on the development of the reproductive organs. It is, therefore, clear that the rays which take the least part in metabolism are the most refrangible rays. As the result of another series of experiments, Mons. Villon has just found that the Vine produces a greater weight of Grapes when grown behind glass coloured red violet by manganese, which absorbs the yellow and brown rays. Flowers are also favourably influenced by the same colour, which is, moreover, advantageous to the growth of bacteria, yeast, and silkworms.

— **PLANTS FOR THE BACK WALLS OF VINERIES.**—I have to thank Mr. W. J. Murphy for his timely note (page 206), in which he supplements my remarks concerning plants useful for the above purpose. I have tried neither of the three varieties of Tea Roses he especially recommends. *Maréchal Niel* I have had a good deal of experience with on vinery walls, but never found it quite satisfactory, as the flowers produced under such conditions were wanting in colour and substance. Climbing *Niphetos* and *Safrano* succeed fairly well, especially if planted near the ends of a house where they receive extra light; but one great objection to all kinds of Roses when growing on vinery walls is that at certain seasons they are so subject to green fly. There is now such great demand for *Smilax*, *Asparagus*, and *Lygodium scandens*, that I think for home use or commercial purposes the majority of gardeners will find them more useful or profitable for vinery back walls than even Roses.—W. C.

— **CANTOR LECTURES.**—A series of Cantor Lectures on Commercial Fibres will commence before the Society of Arts, John Street, Adelphi, W.C., by Dr. D. Morris, M.A., C.M.G., on Monday next at 8 P.M. The subsequent lectures will be on March 25th and April 1st.

— WE learn that Mr. William Scrymgeour of Shrubland Park, near Ipswich, forester to Lord de Saumarez, and late forester to Sir Herbert Maxwell, M.P., has been appointed a Government forester in the Forest of Dean, and will commence his duties there in the beginning of March.

— **MESSRS. WRINCH & SONS**, St. Lawrence Works, Ipswich, who are advertisers in our columns, desire to announce that the two ranges of greenhouses they are building for Her Majesty the Queen for the Royal Gardens at Osborne are now erected at their Works (Portman Road), and will be on view on Thursday and Friday next, the 14th and 15th inst., between the hours of ten and one in the morning and three and five o'clock in the afternoon.

— **THE WEATHER IN THE SCILLY ISLANDS.**—Growers in these islands have experienced heavy losses from the long-continued frost, and at the beginning of the month, when the fields should have been spangled by the white and golden flowers of the *Narcissi*, and all have been bustle at St. Mary's, the fields presented a bare or blackened appearance. In consequence, the steamer which runs between Scilly and the mainland has had very light cargoes, and in some instances farmers have had to reduce their staff of workmen.

— **BRITISH LEPIDOPTERA.**—The remarkable collection of British Lepidoptera formed by the late Mr. William Machin, was sold recently by Mr. Stevens of King Street, Covent Garden. High prices were paid for the majority of the specimens. An *Iris*, with yellow under wings and the white stripe at a more oblique angle than usual, fetched £3 5s. Six specimens of *Dispar* brought prices varying from £5 5s. to £2 each; Two pairs of *Acis* were sold for £4 10s.; a lot of *Trifoli* for £3 10s., while four pairs of *Illicifolia* made altogether £13 3s. A set of specimens of *Subrosea*, seven in number, fetched as much as £18.

— **DUNDEE HORTICULTURAL ASSOCIATION.**—At the Technical Institute, Dundee, on the 5th inst., Mr. A. Innes, Coupar Angus, read an instructive paper entitled "A Melon House and a Few Frames." He gave structural details of a Melon house, and followed with the culture of the Melon. He also remarked on the various uses the house could be put to when the Melons are not occupying it. He also gave, in a concise manner, the culture of double and single-flowered Violets in cold frames. A long discussion followed, and a vote of thanks to the Chairman and the essayist were given.

— **SPRAYING GARDEN TREES.**—In many suburban homes there are only a very few trees, but these need spraying just as much as the trees in big orchards. The question is how to do it most cheaply and conveniently. It may not pay to buy expensive pumps and fixings for these small operations. To owners of garden fruit trees who have command of water under pressure a writer in the "New York Tribune" suggests the following method:—Introduce the spraying mixture by means of a funnel into the ordinary garden hose, filling up the section or sections; attach hose to the supply pipe; adjust the sprayer (generally in use on garden hose) so that the tree is reached throughout, and on turning on the water the spraying solution will be driven steadily out and will be quite under control. When the spray begins to come clear it should of course be turned off at once.

— **DEVON AND EXETER GARDENERS' ASSOCIATION.**—"Foliage Plants and Their Culture" was the title of a paper read at the meeting of this Society, on Wednesday, March 6th, by Mr. G. Camp, gardener to Mr. E. Byrom, J.P., of Culver, near Exeter. Mr. Camp treated his subject in an interesting and discriminating manner. Confining himself to exotic foliage plants, he gave particulars and hints for culture of a long list, including the *Crotons*, *Dracænas*, *Caladiums*, *Anthuriums*, *Marantas*, *Ananassa*, foliage *Begonias*, *Cissus*, *Palms*, *Pitcher plants*, *Side-saddle plants*, and greenhouse foliage plants. A very interesting discussion followed the lecture, which was illustrated by some finely grown specimens of the plants of which the lecturer treated. A vote of thanks was heartily accorded the Chairman (Mr. Hy. Webber), and the reader of the paper. Mr. Hope, Hon. Secretary, announced that the Spring Show would be held on the 20th inst. On account of the backward season some *Hyacinths* and *Tulips* are a little late, and Mr. Hope asked members to help the Show Committee by sending in contributions of plants for the tables.

— **THE OXFORD BOTANIC GARDENS.**—These gardens are receiving the attention of the University authorities, and steps have been taken to place them on a footing and in a position befitting the Oxford University. Quite recently a Congregation empowered the Curators of the University to make sundry payments to the Curators of the Botanic Garden, to bring up the total income of the gardens during the next four years to an amount sufficient to defray all expenses.

— **LARGE CINERARIAS.**—Mr. G. Freeman, The Gardens, Akeley Wood, Buckingham, writes:—"I herewith send for your inspection some Cineraria blooms, and shall be glad of your opinion of them. They were cut from plants measuring 2 feet across and producing upwards of fifty blooms each. They are growing in 32-sized pots." [The flowers were large, ranging between 3 and 3½ inches in diameter, and the colours very rich. They represent excellent culture and a good strain.]

— **BRADFORD PAXTON SOCIETY.**—Between seventy and eighty members and invited guests sat down to the annual dinner of the above Society on the 28th ult. The company included delegates from the Batley, Wakefield, Morley, and Leeds Societies. Mr. R. Eichel (President) was in the chair, and Mr. J. Collier occupied the vice-chair. From the report read by Mr. H. R. Barraclough (the Hon. Secretary), it appeared that the membership had increased during the past year, bringing the present total to eighty-nine. The papers read during the year had been of a high order, affording much information, especially to young gardeners. The report and balance-sheet were adopted.

— **EXPOSITION UNIVERSELLE D'AMSTERDAM.**—During the present year there will be held at Amsterdam a universal exhibition, in which horticulture will be included. It has been decided to hold four shows. The first, for Roses and other plants, on July the 6th, 7th, and 8th; the second and third, for flowers, fruits, and vegetables, on July 27th–31st, and September 14th–18th; and the fourth, and apparently the principal one, for fruit and vegetables, on October 10th–17th. In the latter there are classes for all countries, and entries must be in before the 1st of October. Several medals are offered, but the prizes in the ordinary classes are not scheduled. Full particulars may, however, be had from Mons. Isaac Bulk, Chief Secretary of the Horticultural Section, Amsterdam.

— **WAKEFIELD PAXTON SOCIETY.**—The programme of meetings for the first quarter, session 1895, are as follows:—March 9th, "Methods of Book Illustration, Old and New," with lantern views, Mr. J. Swire; March 16th, "The Pyramids of Egypt," Rev. A. N. Thomas, B.A.; March 23rd, "Migration of Plants," Mr. G. Bott; March 30th, "Observant Habits," Mr. J. Thomas; April 6th, "Trees," Mr. J. W. D. McPherson, B.A.; April 13th, "The Rearing and Preservation of Insects," with specimens, Mr. G. Parkin; April 20th, "Rhubarb," Mr. W. Hudson; April 27th, "The Cultivation of Bulbs for Spring Flowers," Mr. J. G. Brown; May 4th, "The Florist's Carnation and Picotee," Rev. F. D. Horner, Kirkby Lonsdale; May 11th, "The Origin and Development of Plants," Mr. J. Burton; May 18th, "Spring Bedding Plants," Mr. T. Pitts; May 25th, "The Primula," Mr. T. Gartery, Rotherham. Each meeting will commence at 8 o'clock for business, and the lecture at 8.15 prompt. We are glad to see by the financial statement that the funds are in a healthy state.

— **GOOSEBERRY TREES AND RED SPIDER.**—If Gooseberry trees were much more cultivated on trellises than they are red spider and caterpillar would be easily kept down, and a great deal of room saved in gardens. For a number of years Mr. Beddard, Lord Leigh's gardener at Stoneleigh Abbey, near Warwick, has grown them in no other way, and secures fine crops, which are easily protected by netting and kept clean. There are two long lengths of wire trellis, simply uprights at certain lengths, with stout wires strained along at about 9 or 10 inches apart. One-year-rooted cuttings are planted 10 inches apart, and are trained upright, with a single stem on the cordon system, and the side shoots kept pinched off. Large tubs are placed near at hand for holding lime water, made according to a method and at a strength recommended recently in the Journal, and frequent syringings of the trees are given on both sides, and by this means the under part of the foliage is easily got at. Netting can readily be placed over the top to fall down on each side, and gathering can be done by simply lifting the net. A long north-aspect wall has cordon Gooseberry trees against it, and good crops are also obtained here, but when they are against a wall both sides of the foliage are not so easily got at as on the open trellis, and in the latter case caterpillar, a deadly enemy to the Gooseberry tree, is readily exterminated.—W. D.

— **GARDENING APPOINTMENTS.**—Mr. C. Cowley, late head gardener to E. Brodie Hoare, Esq., M.P., Tenchleys Park, Limsfield, has been appointed gardener to W. M. Tidy, Esq., Lynton Crofts, Caterham. Mr. W. Boreham, the experienced foreman under Mr. Moorman at Victoria Park, has been promoted to the position of District Superintendent of open spaces south of the Thames, in the place of Mr. Wilkie resigned. Mr. James Wood, for the last two years head gardener at Oak House, Northenden, Manchester, has been appointed head gardener to Ernest Frank, Esq., Withington Hall, Chelford, Cheshire, and will enter on his duties on the 18th of March. In the issue of February 28th it was stated in error that Mr. J. Brooks had been chosen for this position.

— **PARSNIPS PROFITABLE.**—In the neighbourhood of South Petherton, Somerset, there are large tracts of fertile ground divided into allotments of various sizes, and principally rented by the working classes. For many years past Parsnips have been quite as extensively grown as Potatoes, and are principally preferred by those who grow for the markets. As a rule they do not pay very well, the growers receiving from 30s. to 40s. per ton for the best roots. This season there is an exceptionally heavy demand for Parsnips, these being among the few vegetables that have survived the severe frosts, and the prices have gone up surprisingly. Those growers who delayed selling are securing about £4 per ton for their roots, and two days after I was at South Petherton I heard of as much as £7 per ton being offered in another parish. Sixteen tons to the acre is a fair estimate, and at £4 only that would mean good business.—W. I.

— **CABBAGES.—A LUCKY ESCAPE.**—That the effects of the frost on vegetables is more disastrous in the south than the north is only what might be expected when the protective power of the snow is kept in mind. During the intense frost of last month there was not enough snow to cover plantations of young Cabbages in Surrey and the "home counties" generally, and millions of plants were destroyed. In suggesting to Mr. McIndoe of Guisboro', Yorks, when he called the other day, that the northerners would have the advantage this year, he said, "Yes, I suppose we have. I have a bed of 6000 Ellam's & Mein's No. 1 Cabbages, many of them turning in just as fresh when the snow left them as when it covered them six weeks before—not a plant killed. I have also 400 sturdy plants of Veitch's Model Broccoli quite uninjured, except the tips of the leaves that were not covered by the snow. They were grown on firm ground. The Cabbages were raised early in July, and are grown 9 inches apart in rows 1 foot asunder, as we like them small. We can cut at any time, and shall have abundance." Lucky Mr. McIndoe.

— **SEAKALE.**—I quite agree with "A. D." (page 207) as to the great necessity of having a good stock of the above on hand for winter forcing, and more especially in such a severe winter as this, when so many of the green crops are severely cut up. But I have more sympathy with the old-fashioned method of forcing Seakale than "A. D." appears to have. We annually follow the old system of pots and fermenting material, and have this season had no difficulty in cutting good Seakale since early in December. We were a little later this season than usual, which I attribute to the absence of autumn frosts to give the plants that decided rest so essential to successful forcing. Happily, we have a good supply of leaves and stable manure at command. By using three dozen pots, and as the crowns are cut regularly moving the pots forward (leaving only sufficient of the old fermenting material behind to protect the cut crowns from frost), and working in sufficient fresh material to insure a gentle heat, a regular supply of tender growth is maintained. About 400 new crowns are planted each year, and the same number of old done away with. Some portion of the bed now has been forced six years in succession with good results.—J. FRIEND.

— **THE HISTORY OF KEW GARDENS.**—Some interesting historical facts respecting the Royal Gardens at Kew appear in the "Kew Bulletin" for February. An arboretum has been for more than a century a feature of the Kew establishment. It is supposed to date its formal commencement from 1762, when "all the Duke of Argyll's trees and shrubs were removed to the Princess of Wales's garden at Kew, which now excels all others, under the direction of Lord Bute." The old arboretum in part still exists near the main gate on Kew Green. The Botanical Garden was opened to the public in 1841, with Sir William Hooker as Director. It comprised only about 11 acres, and included the old arboretum. In 1844, by permission of the Queen, about 47 acres, including the ornamental piece of water in front of the Palm house, was added for the formation of a pinetum. This, it

seems, was too near the smoke of suburban London, and it has lost its distinctive character. But many of the trees planted at this time are now of considerable magnitude. The "Pleasure Grounds and Gardens at Kew" were in the occupation of the King of Hanover for sporting purposes at the time the Botanic Garden was given to the nation. The woods were filled with rough scrub for cover. In 1845 they were placed under the charge of Sir William Hooker, "with the intention that they should be formed into a national arboretum." A plan for the purpose was prepared in 1846 by W. A. Nesfield. The main features were carried out at the time, and the general principle has been worked upon ever since. In 1850 the nursery was formed. In 1870 the new pinetum was commenced.

— **GREAT QUINQUENNIAL BULB SHOW AT HAARLEM.**—The fifth great quinquennial bulb show will be held by the Royal Bulb Society of Haarlem from March 22nd—26th. The competition is open for members of the Society only; but therefore will be the heavier, as most of the leading firms of the famous bulb district are among the exhibitors. The schedule of prizes consists of 132 entries—viz., twenty for Hyacinths, twenty-two for Tulips, twelve for Narcissi, the other being devoted to all kinds of miscellaneous bulbs and bouquets. Among the medals offered there are twenty-five gold ones, and some hundreds of silver-gilt, silver and bronze medals, and extra premiums. The judges are experienced bulb growers, chosen among those who will not exhibit, and in a number of entries the judging system by points will be adopted. The rules for this examination were given in the programme of the show, and are known therefore by intending exhibitors. The show is to be held in the large music hall with annexes of the "Vereemging" Club at Haarlem, and will be opened on March 22nd, at 1 P.M. Intending visitors from abroad will be heartily welcome, and may find this an exceptional occasion for comparing the various growers' strains, and for observing the advance of bulb-growing during the last five years. The classes for miscellaneous bulbs will specially prove of the highest interest and completeness.

— **PROBLEMS IN HORTICULTURE.**—There seems to be no end to the problems which confront workers in the higher branches of horticulture. Some men of science in France have, according to the "Garden and Forest," been making a study of plants grown from the seeds produced on grafted plants, and they seem to have demonstrated that the seedlings may partake of the character of the stock as well as of the scion—that is, a seedling from a graft may be, in a certain sense, a hybrid inheriting the qualities both of the plant which is used as a scion and the plant used as a stock. These experiments have been confined to herbaceous plants, and they show that, for example, when a Turnip is grafted on a stock of Garlic Mustard, plants from the seed showed a marked reversion to the wild type, and when this Garlic Mustard was grafted on Cabbage the seedlings showed a likeness to the Cabbage plant, and had a less marked smell of Garlic than the wild plant, combined with something of the odour of the Cabbage leaf. Of course, if this is true, it is not improbable that the same law holds throughout the vegetable kingdom, and when, for example, we cross two varieties of grafted Apples the seedlings may show not only the characteristic of the parent plants, but of the scions on which they grow. In this way a hybrid Apple may have four parents, to each of which it is responsible for some of its characters, not to speak of the qualities it may have inherited from the numerous ancestors of each of these parents.

— **THE NATIONAL ASSOCIATION OF CIDER MAKERS.**—A meeting of this Association was held at the Art Buildings, John Street, Adelphi, on March 6th. Sir George Birdwood, K.C.I.E., C.S.I., M.D., occupied the chair, a moderate attendance of members and friends being present. The Chairman in his opening remarks said the Association had been formed with the idea of assisting the industry of cider making, and he could see no reason why it should not become the national beverage in England. A most interesting and exhaustive paper on "Cider Making" was read by C. W. Ratcliffe Cooke, Esq., M.P., the Chairman of the Consultative Committee of the Society of which he is an indefatigable member. The essayist dealt thoroughly with the whole process connected with the manufacture of cider and perry, from the planting of the orchard and the best varieties of Apples and Pears to grow for the purpose, to the further processes until the liquor is finally put into the barrels or bottles. Several cider makers from the counties of Hereford and Devon also spoke briefly on the subject, and Mr. Cooke, in reply, said it should be the object of English cider makers to produce cider of such a quality of excellence that would drive American and other competitors out of

the market. This he felt sure could be done, and it was the object of the Society to further the interests of this once popular industry so far as was possible, in order that it might again come to the front. A vote of thanks was unanimously given to Mr. Cooke for his instructive paper, and also to Sir George Birdwood for the able manner in which he had presided, after which the meeting was brought to a close.

— **THE KEW GUILD.**—The annual meeting, held at the Kew Garden Library, on February 28th, was a successful gathering. The chair was taken by the President, Mr. G. Nicholson. Mr. J. Aikman, the Hon. Secretary, read the Committee's report and balance sheet, both of which were unanimously adopted. The oldest Kewite living, Mr. J. W. Thomson of Haywards Heath, has shown his appreciation of the Guild's formation by investing a sum in New Zealand stock that will for all time provide the Guild with an annual payment of £5 5s. A hearty vote of thanks was accorded Mr. Thomson for his generosity. Letters from several prominent "Old Kewites" were read by Mr. Watson, and both these and the meeting evidenced the enthusiasm that prevails and the kindly feeling that exists between those who are or have been connected with the establishment. The journal of the Kew Guild will be published as usual in May, and it is hoped that all members of the Guild will assist in completing the efficiency of the list of past Kewites by sending on the "wanted" addresses where such are known.

— **FLORA OF MOUNT KINIBALU.**—In the "Kew Bulletin" for October 1892, page 249, it was announced that Drs. H. A. and G. D. Haviland had presented Kew with a valuable collection of dried plants, collected by themselves on Mount Kinibalu, North Borneo. As a matter of fact, however, it should be explained that, although the two cousins travelled together, it was Dr. G. D. Haviland alone who did the botanising. This fine collection has been worked out by Dr. O. Stapf, Assistant for India at the Herbarium, together with all previously collected plants from the same region, published and unpublished, notably those collected upwards of forty years ago by Sir Hugh Low, and by Mr. F. W. Burbidge in 1877. The results appear as the second part of the fourth volume (Second Series, Botany) of the "Transactions of the Linnean Society." This is one of the most important and interesting contributions to geographical botany published during the past year, especially in relation to the migrations of plants. The total number of flowering plants enumerated is 360, which Dr. Stapf estimates may be one-fourth or one-fifth of the whole phanerogamic flora of the mountain, and nearly 60 per cent. of these, so far as at present known, are endemic. The relationship with the Australasian flora are especially interesting.—("Kew Bulletin.")

— **TINNED GREEN PEAS.**—At the Edmonton Petty Sessions, Messrs. Kearley & Tong, Fore Street, Edmonton, were summoned for selling an article of food, a tin of green peas, which were coloured by the aid of copper, thereby rendering them injurious to health. The evidence showed that the article was purchased on January 10th, and an analysis proved it to contain 7-10ths of a grain of copper, which was equal to 2.75 grains of sulphate of copper. Dr. J. F. Sykes, Medical Officer for St. Pancras; Dr. Dupree and Dr. Luff, analysts to the Home Office, stated that sulphate of copper was a poison, which, if taken into the system in the quantities found in the peas would produce chronic poisoning. The copper was used to make the peas retain their greenness, and the effects would be most injurious, especially to weakly persons. For the defence, it was stated there were 16,000,000 tins of the peas imported annually, and yet no case had proved they had produced any injurious effects. The article was sold in the ordinary course of trade, and if it was poisonous, then the question was essentially a State one, and their importation should be stopped. Several cases were quoted to show that the Courts had held the article was not injurious, and in support of this Mr. Otto Hehner, Public Analyst for Nottinghamshire, was called, and said though there was more than the usual quantity of copper in the sample in question, he did not think it would produce the ill effects suggested by the prosecution. After a hearing lasting over four hours the Bench inflicted a fine of £1 and 20 guineas costs. Notice of appeal was given.

— **THE CHARLES COLLINS' FUND.**—The Committee of this fund desires to tender its sincere thanks to all who have so kindly responded to the appeal; also to intimate that the fund will be closed on the 20th inst. We are pleased to acknowledge £1 from Mr. Coombes, 3s. from "Yorkshire Bite," 5s. from Mr. G. H. Hurry, and 10s. 6d. from Mr. R. Pinnington and two friends. Any further contributions should be sent to the Treasurer, Mr. G. Gordon, Endsleigh Priory, Park, Kew. We think the total sum now acknowledged is £63 2s. 6d.



ROSE SHOW FIXTURES FOR 1895.

- June 19th (Wednesday).—York.*
 „ 25th (Tuesday).—Cowes (I. of W.).
 „ 27th (Thursday).—Gloucester (N.R.S.) and Canterbury.
 „ 28th (Friday).—Exeter.
 „ 29th (Saturday).—Windsor.
 July 2nd (Tuesday).—Sutton.
 „ 3rd (Wednesday).—Croydon, Ealing, and Farningham, and Lee.†
 „ 4th (Thursday).—Eltham and Norwich.
 „ 6th (Saturday).—Crystal Palace (N.R.S.).
 „ 9th (Tuesday).—Wolverhampton.*
 „ 10th (Wednesday).—Chelmsford, Hitchin, and Redhill.
 „ 11th (Thursday).—Helensburgh and Worksop.
 „ 17th (Wednesday).—Derby (N.R.S.).
 „ 18th (Thursday).—Halifax.
 „ 23rd (Tuesday).—Tibshelf.
 „ 24th (Wednesday).—Chesterfield.
 „ 25th (Thursday).—Trentham.

* A show lasting three days. † Show lasting two days.

I shall be glad to receive the dates of other Rose shows than those named above for publication in future lists.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

THE NAMES OF ROSES.

While perusing a list of Rose names to-day, I was more than usually struck with the number of duplicates to be found. Surely there can be no dearth of names for every Rose grown; then why repeat, and often name a second Rose, sometimes a third, similarly to the well-known old favourite? Doubtless there are some few cases where ignorance of the name having already been appropriated may be an excuse, but I am at a loss to find any in more than one instance.

Comtede Paris is one. Who is to know what Rose is meant when only the name of this is given? Do they mean the Tea or Hybrid Perpetual? Duchess of Edinburgh and Duchess of Connaught are in two classes. Then we have the glaring case of Duke of Connaught, the late Henry Bennett giving this name to a H.T. only two years after Messrs. Paul & Son had so named their grand H.P. In the case of Duchess of Connaught, Mr. Noble followed Mr. Bennett by about the same period only. These instances could be greatly multiplied, and surely these prominent rosarians were not ignorant of the prevailing new Roses. Messrs. Veitch & Sons' Duchess of Edinburgh was well advertised and shown only a year or so previous to Mr. Bennett introducing his H. Perpetual of the same name.

Graziella, a very pretty new Rose of 1893-4, we already had in two other classes, and seeing that they were sent out in 1878 and 1889 respectively it is asking too much of us to believe the raiser of the last Graziella was ignorant of the name being applied to any other Rose. Madame Carnot in 1889 and Madame Carnot again in 1894 are further examples. I can understand the commercial instinct which tempts one to give a new production a popular and well-known name, but surely we can find these without duplication among one flower.

What with synonymous Roses, and the same names applied to totally distinct Roses, we shall become terribly confused. The classification is intricate enough, without such palpably avoidable confusion of which I have tried to point out a few examples. If we go back to 1850-60 we find a Rose called Impératrice Eugénie in no less than three classes, and all sent out between the dates named. There was even less excuse then than now, because the plurality of Roses was not so great.—PRACTICE.

LACHENALIAS.

THE Lachenalias, popularly called Cape Cowslips, belong to the natural order Liliaceæ, and comprise a genus of about thirty species of greenhouse bulbous plants, all natives of South Africa. Of the species enumerated and described in botanical and floricultural works many are rare, a few so much so as to be found only in such establishments as Kew, and not always there in living plants. This may or may not be a disadvantage, for many rare things (and plants are no exception) possess little practical value, and what I have seen of scarce species of Lachenalia compared badly, in a decorative point of view, with the old *L. tricolor*, which was introduced in 1774. This is the Cape Cowslip commonly seen, and sometimes known as *L. quadricolor*.

L. tricolor has the leaves in pairs, lorate-lanceolate, spreading (arching over the pots), dark green in colour, and spotted with deep purple or black; flower scape erect, the blooms disposed at the upper part in a graceful manner, bright green, red, and yellow, the whole 9 to 12 inches in height. It flowers in April, and in masses produces an effect unequalled by any plants of similar pretensions as regards size. Its variety,

L. tricolor aurea, has pure yellow flowers, and is sometimes found under the name of *L. quadricolor lutea*. It is very beautiful, and as yet somewhat scarce. There is also a variety, or possibly species, named *L. luteola*, with yellow flowers, and this forms a charming basket plant, the leaves depending gracefully, while the colour is unique amongst greenery. Botanists, however, do not recognise it, nor the form of *Lachenalia quadricolor*, which has purple in addition to red in the flowers, and if a synonym of *L. tricolor* is a very distinct and desirable one, being very much scarcer and higher in price. It has spotted leaves like *L. tricolor*, and flowers rather later, *L. tricolor* being the first of the two to flower in the spring. *L. Nelsoni*—a hybrid—has golden yellow flowers, produced in long racemes, and is extra fine. Though dating from 1881 it is still somewhat scarce. The woodcut (fig. 41) represents a well grown pot of this handsome Lachenalia.

L. pendula is a strong growing species, with somewhat erect leaves, dark green and slightly spotted, the flowers being of a deep purple, red, and yellow colour, quite an inch long, and are almost too closely set, yet in an exceedingly graceful manner, on a stout and spotted scape.

Lovers of scented flowers may find something like *Heliotrope* perfume in *L. contaminata*. The blooms are white tinged with red, the leaves spotted and numerous, and it flowers with or before *L. tricolor*. *L. fistulosa* also has fragrant flowers, containing colours for the fastidious, the calyx being white tinged with sky blue, brown tipped sepals, and white petals edged with purple. It is very scarce. *L. fragrans* really deserves the name, the twenty-flowered racemes being very fragrant, white at first, but soon becoming reddish. It flowers in May. *L. odoratissima* is the sweetest scented of the genera, and is easily recognised by its blistered leaves. The flowers have white sepals with green tips, and disposed in a somewhat dense raceme. It and *L. fistulosa* were introduced in 1884, but *L. fragrans* dates from 1798. *L. orchioides* reached these shores in 1752, and is perhaps only known in botanical gardens. Its flowers are fragrant and variable in colour, hence the name *L. mutabilis* sometimes given to this species.

There are several other species. *L. glaucina* (glaucina), white and red, or yellow tinged; *L. pustulata*, with whitish flowers and long blistered leaves; *L. pallida* (surely nothing more than a magnified *L. glaucina*, and another *L. pallida*, but a synonym of *L. lucida*), the last having sweet flowers tinged with red or yellow, this being an uncommon species, but the three preceding (not bracketed) and *L. unifolia*, which flowers in March, these being white and in many-flowered racemes, may frequently be met with in botanical gardens and other collections. *L. lilacina* has lilac flowers in an oblong spike, and was introduced in 1884, yet is somewhat rare.

The culture of Lachenalias is easy, the chief points being to employ a rich, open soil, good drainage, water carefully in the early stages of growth or during the winter, yet sufficiently to prevent the leaves flagging, and when they are well advanced afford an abundant supply. Too much light cannot be given with free ventilation, but draughts cripple the foliage, and the drying heat from hot-water pipes is scarcely less pernicious, whilst frost and damp are alien to satisfactory growth and flowering. Growing in frames and outdoors has been advised, where frost can be excluded or prevented from doing harm, but I have yet to find such a place in England for these Cape denizens, and the less of this kind of starveling treatment the better. On the other hand, forcing is inadvisable, as that means keeping up a stock for the purpose. The place for Lachenalias is an ordinary cool greenhouse, fire heat being only used to exclude frost and expel damp, then in a light, airy position Cape Cowslips will thrive, flower finely, and keep in good condition for several weeks.

Now is the time to look out for Lachenalias, see them in flower, make selections, and order bulbs to come to hand not later than August. I ask that special note be made of *L. tricolor*, its variety *aurea* or *lutea*, of *L. Nelsoni* and *L. pendula*. These are indispensable in any well appointed cool greenhouse, and are worth growing in numbers for decorative purposes. The thing is to see and the rest follows.

The bulbs are generally quite dormant at the beginning of August, when they may be turned out of the pots, have the soil removed, and be sorted into three sizes—large, medium and small. Of course this trouble will be saved if dry or loose bulbs are procured, and they will or should be of the first or blooming size, for it is only the strongest that flower the best, whilst the medium sized give some bloom, and the small need growing on for another year to acquire strength for this purpose.

The compost for potting may consist of two parts turfy loam and one part leaf soil or well decayed manure, with about one-sixth of sharp sand. This should be well mixed, the pots or pans being drained with clean crocks, and some of the rougher parts of the compost placed thereon to keep it from clogging. Enough soil should be placed in the pots or pans as to bring it up rather firmly to such height that when the bulbs are introduced their apices will be an inch below the level of the rims. This will allow the bulbs to be covered half an inch deep, that is, buried, and leave that amount of space for holding water. Pots 4½ or 5 inches in diameter are large enough for half a dozen of the strongest bulbs, and pans of double those diameters are better than pots of that size, in addition to holding about four times as many bulbs as the smaller pots. The soil should be pressed rather firmly about the bulbs, and a little sand sprinkled in before introducing them. If the soil be moist and the pots or pans are placed on a bed of ashes kept damp, they will not need any top watering till the bulbs commence growing, or very little, and then only enough must be given to keep the soil moist.

A low pit or house from which frost is excluded is the best place for growing *Lachenalias* in quantity, allowing all the light possible, and free ventilation from 45° or even 40°, anywise full at 50°, for without air on all favourable occasions the foliage becomes drawn, also when

giving excessive supplies of water, yet a full one when needed, and then wait until the soil is becoming dry before repeating. Liquid manure may be given as soon as the flower spikes appear, but it should be clear and not strong, as it lodges in the axils of the leaves. Chemical manure, for the



FIG. 41.—LACHENALIA NELSONI.

kept at a great distance from the glass. Cold draughts, however, must be avoided, as this cripples the leaves and stunts the growth, especially in February and March, when the plants are advancing for flowering. The plants must have the soil moist when they commence growing, not

same reason, must be carefully applied. This answers even better than liquid manure, sprinkling a little judiciously and cautiously between the plants, and washing in. When advanced towards flowering more water is necessary, observing the conditions before named as to when to supply

it, and remember that as the weather becomes warmer more air must be given. As each strong bulb produces from one to four flower spikes, the array of bloom is considerable, and the plants are fit for any decorative purpose, showing to best advantage placed in groups, as masses of wild Hyacinths and Wood Anemones do in woods, or Primroses on banks.

When the flowering is over the plants require liberal waterings for a time, but not unnecessary supplies, and all the sun and air a cool greenhouse or low pit affords. This will secure well-developed bulbs and thorough ripening, the watering being diminished as the maturity proceeds, leaving it off altogether when the foliage turns yellow, and when completely died down store where dryness will be assured until starting time.

The medium sized bulbs should be treated similarly to the large, only placing more in a pot or pan. Like remarks apply to the small bulbs, which if encouraged with liquid manure when in full leafage, and ripened off properly, will do good service the year following.

Ordinarily the plants are simply kept in the pots from year to year, being potted in September or when they commence growing, merely dividing the clusters of bulbs, removing some soil, so as to allow space for fresh with new drainage, then assigning them a light airy position in the greenhouse, from which they are only taken for potting, and giving water as growth and the condition of the soil prompts. Grown in this way the plants give very little trouble, and bloom as certainly at their appointed season, affording a charm to the greenhouse occupants, and enhancing the interest all round. After flowering and ripening off the pots are kept on shelves or other convenient position, where they will receive only sufficient water. To keep a fair amount of moisture in the soil appears to be, in my opinion, better than the "dry as dust" system.—G. ABBEY.

VEGETABLES FOR EXHIBITION.

POTATOES.

IN dealing with the Potato it is important to have the sets thoroughly prepared in shallow boxes as soon as possible after the crop is lifted from the open ground. The sets—which should be of uniform size and as large as a hen's egg—should be placed on their ends with the eyes upwards, and put in a cool position where they will be safe from frost, and will receive as much light and air as it is possible to give them. In the early spring they will begin to grow, and on the top of each set will be found one strong stem with probably several weaker ones. These latter should be rubbed off, thus concentrating the sap towards the strong one. If the best results are desired Potatoes for planting, especially for exhibition, should never be clamped or thrown together in a heap, as they are sure to sprout prematurely, this causing the stem to be weak, and the haulm to become a ready prey to the disease. By keeping them in boxes quite cool, with abundance of light and air and one strong stem, an excellent foundation is laid for a crop of exhibition tubers.

The preparation of the soil next demands attention. This is best done in the autumn or early winter by thoroughly trenching to the depth of 2 feet. If the bottom spit is not so good as the top it is better not brought to the surface. If the ground has been manured for the previous crop none will be required, but should it be in poor condition a dressing of leaf soil will be found beneficial. Fresh manure from the farmyard induces soft and sappy growth. It is much better to add to the soil such ingredients as will encourage strong stocky growth, with firm leathery foliage. Probably nothing better can be had for this purpose than a good dressing of wood ashes, and if the soil is heavy and stiff a sprinkling of hot lime just before forking the ground over will be of great service not only in improving the soil but in killing little insects. After the ground has been thoroughly forked over, the lines should be drawn to the depth of 6 inches, and at least 3 feet apart for strong sorts, and 3 inches less for smaller. The sets should not be planted closer in the lines than 2 feet—in fact, 6 inches more would be better for robust sorts. This may seem waste of ground, but one cannot have well-formed tubers when they are planted closer, because the leaves are so crammed together that it is impossible for the sun and air to reach them, and if the leaves and stems are not properly matured it is impossible to have tubers of first-class quality. In many soils it is difficult to get the tubers with clear skins. When this is the case, wood ashes, burnt soil, and a little soot form an excellent mixture to place over the sets when planting. Where the soil is of a light sandy loam this is, perhaps, not required. The soil should be drawn over the sets in the form of a ridge, when nothing more will be required except keeping the ground well stirred and free from weeds till the haulm has reached the height of 9 or 10 inches, when they should be finally earthed up.

When lifting the crop great care is necessary not to prick any of the tubers, nor to rub off the skins. The tubers must be selected of an uniform size, and if the show is near at hand they should be carefully washed, before the soil becomes dry, with soap and water and a sponge. As soon as dry they ought to be wrapped in soft paper and placed in a drawer. As regards varieties much depends on the season at which they are wanted. For early shows Snowdrop and Sutton's Seedling are two of the best, and Satisfaction may be grown for later purposes.

PEAS AND BEANS.

Many different ways are adopted in growing Peas for exhibition, but none is better than growing them in trenches prepared as if for Celery.

The trenches should not be less than 2½ feet deep and the same in width, and filled with well decayed farmyard manure mixed with part of the soil taken from the trench. If plenty of wood ashes could be had they would be an excellent addition to the soil, as they generally contain potash, which the Pea is much benefited by. Three inches of soil should be placed on the top of the manure, bringing up the trench level with the surface. As regards sowing, much will depend on the time they are wanted; but the careful exhibitor will seldom trust to one sowing of the variety he wants to exhibit, for the seasons vary so much that one sowing might either be too early, or, what is worse still, too late. It is best, therefore, to make two or three sowings at intervals of eight days. Three inches will be quite deep enough for the seed, and the Peas should not be closer than 2½ inches. They require abundance of room to develop, and in allowing this you not only insure as many and more pods, but they are handsome and of better flavour. It is a good plan to pinch out the top of some of the stems after they have made three or four trusses of bloom, as the sap gets checked and larger pods are obtained. Feeding should commence as soon as the pods begin to set, and may be continued as long as flowers are produced. The Pea likes water, and should never become dry at the roots. Soot is an excellent stimulant. If the season is a dry one the lines should be top-dressed with long litter, which prevents the sun from drying up the moisture.

If an exhibitor finds that his Peas are too early he can keep them from eight to twelve days by adopting the following method: Fill a pan full of wet sand, pick off the best pods, and immerse the small stalks only in the sand, taking great care not to rub off the blooms; place the pan in any cool dark cellar, and they will keep there perfectly safe for the time mentioned. A good dish of Peas when well staged should not bear a trace of rubbing. There are many varieties suitable for exhibition, but none seem to find more favour than the Duke of Albany. Sharpe's Queen is also popular.

Runner Beans should be treated like Peas, except in a few details. The seed should be planted about 8 inches apart, and must not be placed outside earlier than the last week in April. If required early they should be sown in pots, placing two or three seeds in each in a cold house or frame, and planted out when about 3 inches high. This will make a difference of from a week to ten days in gathering. Ne Plus Ultra and Sutton's Prizewinner are both excellent varieties.

French Beans should be treated in the same manner as the Runner, only no staking will be required. Ne Plus Ultra and Canadian Wonder are chiefly grown for exhibition.

CAULIFLOWERS AND BRUSSELS SPROUTS.

The soil for these can scarcely be too rich, at the same time not loose, but moderately firm, or the result will be more leaves than anything else. When trenching the ground two spits deep in the autumn manure may be placed at the bottom of the trench and between the two top spits. For early shows Cauliflower seed is best sown thinly in boxes in light soil about the beginning of March, and as soon as the plants have made their seed leaves and become sufficiently hardened, they should be pricked into a frame with a little hot manure placed at the bottom, and 3 inches of half-decayed leaves and turfy loam. In this compost they will grow well and lift with good balls. When being transferred to their summer quarters the ground should be thoroughly forked over, and for the strong growing sorts, of which Autumn Giant is an example, the lines ought not to be closer than 3 feet, and 2 feet from plant to plant.

Cauliflowers can easily be had from outside sowings, which should be done as soon as the weather will permit in March. The seed should be sown very thinly, and the young plants must not be allowed to crowd each other. After they have made four leaves they should be pricked into other beds and thoroughly watered. When ready for planting out they may be lifted with good balls with a trowel, and placed in their new quarters, a handful of soot and lime being thrown round the stems. This will help to prevent the white maggot, which sometimes does great damage, rendering the plant useless by eating off the roots. Abundance of water should be given when the weather is dry, and liquid manure may be applied with advantage once a week. When the heads begin to form, a strict watch must be kept on the caterpillar, and the only effectual remedy I know of is handpicking.

Good Cauliflowers should be perfectly white; this can only be accomplished by tying the leaves over the head and excluding the light immediately they begin to form. A head can be kept in good condition from ten to fourteen days by pulling up the whole plant and storing away in a dark, cool shed. In my opinion the purity of the curd is improved by so doing. This plan has much to recommend it, especially when they are too early. If left in the open ground the same heads would be useless. The stems should never be cut off before staging at the show, and even then they sometimes come in useful, as they serve as a prop when they require to be placed on the top of each other. For early shows Veitch's Pearl is good, and for later ones nothing can equal Autumn Giant when in good condition.

Brussels Sprouts require the same cultivation as Cauliflowers; only, if the soil is rich, the firmer it is the more solid the sprouts will be. Sutton's Exhibition and the Wroxton are good types for show purposes or general use.—JAMES GIBSON.—(Read at a meeting of the Croydon Gardeners' Mutual Improvement Society.)

(To be concluded.)



DECORATIVE CHRYSANTHEMUMS.

IN my remarks on decorative Chrysanthemums (page 120) there is a mistake, which I think needs correction. It reads: "I never pinch or stop them, but thin the growths, &c." What I intended to have said is, I never pinch, stop, or thin the growths, but let them grow as they will, &c. I do not think by thinning the growths one could secure the same results as by the system I adopt, and would recommend others to try it.—J. LYNE.

PRIMROSE HILL CHRYSANTHEMUM SOCIETY.

THE annual meeting of this Society was recently held. Mr. B. Gleadhill, President, occupied his official position. There was a good attendance of members. The report and balance-sheet were read, and showed that the Society was in a most flourishing condition. There had been a large increase of members, honorary members being more than double the previous year. The President generously supplemented his usual munificence by additional special prizes. Votes of thanks were accorded to the President and retiring officers. The election of officers for the new year resulted as follows:—President, Mr. B. Gleadhill; Vice-Presidents, Dr. Forbes, Mr. A. T. Bescoby, Mr. A. M. Wilson, Mr. H. Dearden, and Mr. H. Broomhead, F.R.H.S. Committee—Messrs. W. Tissington, R. Allen, J. Carnell, A. Medley, T. Fletcher, J. Lidster, S. Hurst, W. Halliwell, and T. Beaumont. Chairman, Mr. T. Howe. Judges, Mr. B. Glossop, Sheffield, and Mr. J. Woodfield, Birley Carr. Honorary Treasurer, Mr. C. Drabble, Walkley Bank Road. Secretary, Mr. J. Roberts, in the place of Mr. P. Hallam (resigned). Reference was made to the loss sustained by the Society by the deaths of Messrs. S. Furness and C. Burgon. Members of the Sheffield Chrysanthemum Society and other local societies were present.

NATIONAL CHRYSANTHEMUM SOCIETY.

THE General Committee of this Society held a meeting at Anderton's Hotel on Monday last, when the newly elected Vice-Chairman, Mr. T. W. Sanders, presided. After the minutes of the previous meeting had been read and confirmed, a letter from Sir Edwin Saunders was read, expressing his thanks at having once more been elected as President of the Society.

It was moved that an illuminated address on vellum be presented to Mr. R. Ballantine on his retirement from the office of Chairman for his valuable services to the Society since the year 1879, and in appreciation of the high esteem in which he is held by the Society. The report of Schedule Sub-committee was then presented, and special prizes were recommended for acceptance from the following donors—Mr. J. Wills, Mr. W. Wells, Messrs. B. S. Williams & Son, Messrs. Sutton & Sons, and Mr. W. J. Godfrey.

The Chrysanthemum catalogue recently compiled and published by Mr. O. de Meulenaere of Ghent was then submitted to the meeting as a valuable addition to the literature of the flower. The compiler, who is a foreign member of the N.C.S., was awarded a silver medal for his work.

The Secretary announced that the total number of members now on the books was 704, made up as follows:—Seventy-nine Fellows, 598 ordinary members, and twenty-seven foreign members. Altogether there are now 114 societies affiliated to the National.

One-third of the Floral Committee retiring by rotation, but being eligible for re-election, resulted in a change of membership, the following gentlemen being appointed—Mr. G. S. Addison, Mr. D. B. Crane, Mr. W. H. Lees, Mr. C. E. Shea, Mr. J. W. Moorman, and Mr. J. (Temple) Wright. Mr. George Gordon was elected Chairman of the Floral Committee in the place of Mr. W. H. Fowler, who is much occupied this year with work of a local nature.

The following dates were fixed for the meetings of the General Committee during the ensuing season—26th August, 30th September, 28th October, 18th November, 9th December, 1895, and 20th January, 1896. The Floral Committee will meet on the 3rd and 25th September, the 8th, 23rd, and 30th October, the 11th, 20th, and 27th November, and the 3rd and 11th December.

With regard to the celebration of the Society's Jubilee in 1896, it was recommended by the sub-Committee, who have had the consideration of the matter, that a four-days show be held with competition on the first and third days; that a Jubilee medal from a special design be struck, and that a banquet and Conference be also held. Amongst other items in the schedule will be a class for Japanese cut blooms, with a first prize of £20 and a gold Jubilee medal; second prize, £15 and a silver-gilt medal; third prize, £10 and a silver medal; and a fourth prize of £5 and a bronze medal. A similar class with the same prizes for incurved is also to be included. A class for single-flowered Chrysanthemums, another for Colonial exhibits, and one for varieties in cultivation when the Society was first established, are also to be provided in the Jubilee schedule.

The Catalogue Revision Committee was then elected, the following gentlemen being appointed to serve:—Messrs. Harman Payne, A. Taylor,

W. H. Lees, H. J. Jones, and D. B. Crane. Mr. J. W. Moorman moved that a hearty vote of thanks be accorded to Mr. Payne for his services as Editor of the "Chrysanthemum Year Book," and to all the contributors to that work. Mr. Crane thought that something more substantial should be done in the case of the Editor, and after some discussion it was resolved that the matter be dealt with at a future date. Upon the motion of Mr. Bevan it was resolved that the Secretary should in future receive the sum of £75 per annum for clerical assistance instead of £50. Two Societies were admitted in affiliation, and several new members were elected:

THE CHRYSANTHEMUM YEAR BOOK.

So Mr. A. Dean (page 212) is displeased because the Committee of the N.C.S. has not condescended to thank him for his work in connection with this publication, and he suggests that the Editor should be paid for his services. A friend in America has favoured me with a copy of the "American Florist," from which I cull the following comments on the publication in question:—"The Year Book published by the N.C.S. of England has recently come to us for review. It is a paper-bound volume of eighty-eight pages, exclusive of advertisements. The American Chrysanthemum literature offered by this book is certainly open to criticism. We find a list of synonymous Chrysanthemums in America by Mr. T. H. Spaulding (in which, by the way, the very familiar Wanemaker is mis-spelt), in which we find 'Ostrich Plume' given as a synonym of Mrs. Alpheus Hardy. It should be borne in mind that although Mrs. Hardy was widely advertised as the 'Ostrich Plume Chrysanthemum,' the title was never arrogated solely by that one variety; it was used as a descriptive term for all the hairy form, and is still so used. For this reason we think it an error to give 'Ostrich Plume' as a synonym when it is merely an adjective.

"Mr. Spaulding gives Robert Bottomley as the proper name of Lady Trevor Lawrence as the synonym, which should be reversed. In the case of President Spaulding, given as correct name, synonym Charles Sharman, it will be found that Charlie Sharman, President Spaulding, and Gladiator are all synonyms of the variety W. M. Singerley. Mr. Spaulding gives Francis A. Spaulding as correct name, J. S. Dibben and Mattie C. Stewart as synonyms; but M. de Meulenaere entertains a contrary belief, as he gives Mattie C. Stewart and 'Mrs. F. Spaulding' as synonyms of J. S. Dibben. We do not find Francis A. Spaulding in any list of Chrysanthemums to which we have access, there being but six or seven varieties bearing this family name in our authorities, so evidently Francis A. got away.

"Mr. Michall Barker of Cornell University gives some notes on American varieties and methods of culture, but few of our most striking novelties are mentioned. . . . 'A list of twenty-five Chrysanthemum portraits with the papers in which they appeared is given; being restricted to this number of varieties it gives but a small impression of the many illustrated, particularly in America. It seems to us it would have been preferable to omit them altogether rather than to have given such an imperfect list.'"—FAIRPLAY.

PRIMULAS AT PERRY HILL.

PROBABLY nowhere within the metropolitan area can a finer collection of Chinese Primulas be found than at the Perry Hill Nurseries. It is here that the celebrated Holborn varieties have been and, it is hoped, will continue to be raised. For a great number of years Messrs. J. Carter & Co. have been experimenting, and hybridising with indefatigable zeal and exceptional success to improve the existing strains, not of Primulas alone, but also of many other florists' flowers. In this work perhaps none but themselves know to what extent they have been assisted by their able manager, Mr. Waters. In proof, if such is needed, of this assertion, growers have but to cast back their thoughts to the Holborn Primulas of a decade ago, and then to look at those of to-day. It will readily be seen that they have improved in all respects. The plants are of a sturdier habit of growth, and carry the flowers on stouter footstalks in bold trusses well above the leafage. Look again, and it will be seen that the individual pips are purer in colour, firmer in texture, larger in size, and more shapely in contour. The range of colouration is also very much wider.

Looking at these one would think that the acme of perfection had been reached, but still the work is being carried on with undiminished ardour and sanguine hopes of still further improvements. Let us hope that such will be realised, for any appreciable advance in the quality of these most popular winter flowering plants would be hailed with nothing but pleasure. To those who have been and are working so assiduously, the thanks and gratitude of all plant lovers are due, and will, we doubt not, be readily accorded.

Anyone visiting these nurseries will most likely be struck by the comparatively small size of the plants, for all are grown in 5-inch pots. The object for which the plants are grown, however, must be borne in mind. They are not raised for show purposes nor for decoration, but simply and solely for the production of seeds, and for this purpose all growers will know that young healthy stock is the chief desideratum. Old plants that have flowered profusely do not, as a rule, set their seeds so freely as plants in a younger state. The seeds from which the present plants were raised were sown at the end of July, and are sturdy, vigorous specimens, than which none better could be desired. Evidently the right methods of culture are thoroughly understood, and advantage taken of any detail, however apparently small, that may tend towards success.

All the varieties offered by the firm in its "Vade Mecum," besides many others, are tested at Perry Hill, and the comparisons between the numerous varieties is most instructive, at the same time exceedingly interesting. One can in walking through the structures see at a glance which are the best of their respective colours, and thus make a selection; but as numbers of readers of the *Journal of Horticulture* will probably have been unable to go and see for themselves it will be the object of the writer of these notes to mention those that are especially meritorious, either in floriferousness, colouration, or size and substance of the flowers. Of course, regard must be had for the matter of taste, some persons having a partiality for one colour, and others for another. It may safely be asserted, however, that those mentioned below will give every satisfaction, as being of the highest quality and of the most general utility.

Amongst such a plethora of beautiful varieties it is difficult to know where a start should be made, but we may safely surmise that if the much-discussed Blue is placed at the top of the poll that we will not be far wrong. The Blue is now an established fact, much as it was ridiculed a few years ago, and in Holborn, Iris is almost a paragon. The plants are of strong growth, free in flowering, while the petals are of splendid substance and form. The colour is a real blue, though not perhaps of a celestial hue, but this mayhap will be obtained in the course of a few more years. Such earnest work must eventually, one would think, bring a rich reward, and if the same is done in the future as in the past then indeed will this be the case. Though good, and still in much demand, the Holborn Blue cannot be compared to the one previously named.

A variety that is certain to command admiration is Princess May, which carries shapely blooms of the most delicate rose hue. The substance of the petal is good, and the flowers are moreover very freely borne. It certainly has a great future before it, and will most likely be seen and heard of for a number of years to come. One of the most chastely beautiful is Elaine, with pearly white flowers carried well above the rich green foliage. It is a variety that would be an acquisition to any collection. Holborn Queen is exquisitely soft white in colour, the trusses being very fine both in shape and size. This is unquestionably one of the best white Primulas in cultivation. Hercules is admirably named, for the massive growth and flowers force one to think of wondrous strength. The colour is a very deep, and at the same time, brilliant rose, and the blooms are borne with great freedom.

Numbers of other single forms were seen, but they are far too numerous to permit of an extended notice of each of them. It must not be thought, however, that they are not worth growing, for such is not the case, and those who are desirous of having a complete and up to date collection cannot afford to miss them, or the goal will not have been reached. Amongst these may be mentioned Carter's Scarlet, Single Magenta, Vulcan, Roses Venus, Ruby, and Carmine, all of these being singles, and all well worthy of a place where a thoroughly diversified stock is aimed at.

* Turning now to the doubles, the same variation of colours with perfect form and substance is readily observable. Again, let the Blue be accorded the premier position. This time, however, such high praise cannot be accorded so far as colour is concerned as the single, but though lacking slightly in this respect it fully makes up for it in others. The shape of the flower is superb, as also is the solid texture of the petals, while they are borne in exceptional abundance. It is called Lilac Queen, and good as it undoubtedly is, it will be ousted as soon as a richer, clearer blue is thoroughly established. Another very beautiful double variety is Snowflake, which is early, free, and of excellent colour.

Richer in hue than either of the foregoing is Carmine Empress. The colour is remarkably pure, and such as always elicits admiration. In addition to this both flower and truss are of the first quality. When the names of the Prince and Princess of Wales are reached something good is very naturally expected, and the hopes are thoroughly realised. The colour of the former is a pure rose, and of the latter white, very pleasingly spotted with rose, the bloom in each case being very handsome.

These notes are necessarily brief, and must now be brought to a close, though they cannot possibly have done justice to the Primulas at Perry Hill. In conclusion, let us heartily congratulate Messrs. Carter & Co. on their work, and express the hope that they may continue to work amongst Primulas for a number of years yet, in which case it is almost certain that many more superb varieties will find their way into commerce through the medium of this world-renowned firm.—NOMAD.

PRUNINGS.

ADVICE opportunely timed is of twofold value. Last week's number of the *Journal of Horticulture* prompts this reflection. Digesting the matter therein contained arrests some passing thoughts thereon.

"Fragaria" (page 199) gives sound and seasonable advice by pointing out "mistakes in Strawberry forcing," most desirable to know in order to avoid. He says, "As soon as . . . five to nine fruits are set remove the other flowers." From now onwards I think the "stitch in time should save nine." Considering the labour involved, compensation must be looked for in the highest possible return, not necessarily in the number of fruits, but in the weight. My criticism is for the sole purpose of acquiring knowledge from one who is apparently well able to give it. Hence, what should be a fair

average weight of fruit per pot, and what per-centage of plants may be expected from good culture to be worthy of retention at the final stage? Approximate data would be useful to growers. You have, "Fragaria," told us so much that we would like to know more.

"T. F." (page 205) says, "When the Onion bed is prepared . . . sprinkle a good pinch of flowers of sulphur in each drill . . . this will produce a sure crop of Onions and no grub will trouble them." Thanks, "T. F.," the remedy is simple; we shall test it.

I note (page 207) that the Chas. Collins' fund is about to be closed, and sincerely hope that it may close over a large amount of practical sympathy for his bereaved ones.

Mr. Taylor (page 208) discourses pleasantly on Vine culture, and conscientiously criticises earlier practice by the light of later experience. May we all be as expert in Vine culture and as liberal-minded to receive and dispense new ideas.

Fig. 38, *Pentas carnea*, revives memories of an old favourite, which had but one fault, namely—its prevalence to attacks by mealy bug. To this I attribute its going out of date, for of all buggy subjects it is the buggiest. Once infested, cleaning, from its hirsute nature was out of the question. Hence, *Pentas carnea* was frequently pitched out, and is now all but of the past.

In the Rose department there is weeping and wailing. A high death rate must be looked for when returns are published. I hear of heavy losses in the North amongst the standards. In all departments noticeable effects of the late severity are increasing with the sun's power. It could not be otherwise considering the soft, sappy condition of vegetable life when the frost set in.

Mr. Arnott (page 210) timed his notes on Snowdrops when they were most interesting. The thought arises, and cannot be suppressed, that anything not known by this gentleman about hardy plants is not worth knowing.

Queries anent Mushrooms still crop up. To those who read, mark, learn, experience of either success or failure in culture is of value. Those who cannot afford to fail should read Wright's "Mushrooms for the Million," for if they go by Wright they can hardly go wrong.

The article by "G. H. H." (page 212) on *Humea elegans* recalls an anecdote related of an old time gardener, who when seeing his lady making her way for the greenhouse would hurry in and vigorously shake these highly perfumed plants, thus paying respect by offering incense to his employer. *H. elegans purpurea* is more attractive than the type.

"Notes and Comments," by "The Missus" (page 214) are most enjoyable. Presumably her evident love of gardening detracts not from her culinary skill, and such savoury odours arise from her table as to overcome any sensations of the Faugh! type from the velvety French Marigolds we all admire, but their odour is by some deemed a drawback to table decoration. Still, "Comparisons are odorous," especially in recalling the troubles of a huntsman (in "Punch") whose hounds "lost the scent through running over that bank o' stinking wilets."

Has Covent Garden Market been removed to the Riviera? One might imagine so in noting the prices quoted, which would afford texts for more than one sermon at the present time, when the question is raised, "What pays to grow?" Taking Cucumbers for instance, the mean price quoted being 3s. per dozen. By what arithmetic could a sum be worked out, including cost of production, carriage and commission, so as to leave a remainder for the grower?—SAYNOR.

EXAMINATION IN HORTICULTURE.

I WAS pleased to learn from your correspondent, "W. D., Turnford," page 214 in last week's issue, that so many of the successful candidates in the Royal Horticultural Society's examination last year were under the age of twenty-five years, as it reflects great credit on the abilities of youthful competitors; but your correspondent does not mention how many of those forty-nine successful ones obtained first-class certificates, for after all a mere pass or third-class certificate but inadequately satisfies most young candidates' expectations.

"W. D." says, "All who sit might (if their answers were good enough) gain a first-class certificate." Here he puts young gardeners and others on an equal footing with men who have had years of practical experience, and surely as much, if not more, theory than any young man, and expects the latter to pass as creditably as the former an examination in horticulture, composed of questions one-half of which (as he himself admits) relate to practical gardening operations.

If some of our head gardeners, school teachers, and others wish to compete for these certificates let them do so by all means, but let there be two separate grades of examination—a senior grade, without any limit as to age or experience, and a junior grade, candidates for which would be limited to, say, not above twenty-five years of age. Then young men who think they are capable of competing in the higher grade can do so.

I did not expect a difference of opinion *re* the above subject should emanate so vehemently from such a source as from your correspondent who signs himself "A Young Amateur Gardener," who is indeed very liberal in his views respecting this matter, and it would be a pity to prevent such amateurs of his type from competing against, as he himself truly says, some of the chiefs, who give valuable information and notes of experience in the *Journal of Horticulture* week by week.

Perhaps the proposition suggested above would meet with "A Young Amateur's" approbation, as it would still enable those to compete whose cause your correspondent has so much at heart.—A YOUNG GARDENER.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

ON reading the remarks made by your very interesting correspondent, "E. K., Dublin," on the above subject, I must say that it seems strange that so comparatively few gardeners are found on the list of so useful an institution. I hope now that the subject is opened that some contributors will think it worth their while to deal with a matter of so much importance.

I believe there are many who would enroll themselves as members if they could only have some little to do with the working of it, and it is with this object in view that I would beg to suggest to the management to try and induce in different centres through the country, the many horticultural societies to form branches of the above, all to work to the same rules and in conjunction with headquarters.—P. CLARE, *Blundellsands, Liverpool*.

BEYOND the perusal of the notes which appear at times in the pages of the various gardening publications I know little about this Society, and I may say that I am not alone in this matter, for during my gardening career I have never come in contact with one gardener who could fully explain to me its rules and regulations, or the precise way or manner in which the bounties are distributed; therefore in reply to the question put by "E. K., Dublin" (page 200), "How is it that the G.R.B. Institution is ignored by so many good and capable men?" I have no hesitation in saying that it is because the object of it is not made sufficiently clear. Another reason which may, I think, be cited as having a great deal to do with the increasing unpopularity of this Society is in reference to the way by which the candidates are elected. Gardeners say that they do not agree with the ballot, for why should a candidate because he is a gardener of repute, or because he may have a larger circle of friends than another, capture a greater number of votes, thereby entitling him to the benefits of the Society, whilst a less fortunate man would be debarred from deriving assistance because he is practically unknown in the gardening world?

These are the only reasons I have heard why the Institution does not meet with greater support than it does at the present time. If such cases be correct, could not some way be devised by which all the candidates would be placed on an equal footing? for it is a well-known fact that where there is the least signs of favouritism in connection with an Institution the undertaking must and will most assuredly result in a failure. My knowledge of the Institution, however, and to the way in which its business transactions are carried out, is very limited. I have only penned the above remarks with the hope that someone who is more thoroughly acquainted with the Institution and its workings may take the subject up, and throw a ray of light on it by explaining through the pages of the *Journal of Horticulture* some of the principal rules and objects. I feel sure that if the Society was brought more prominently before the notice of gardeners it would be crowned with much greater success in the future than it has hitherto experienced. I should be glad to know where I could obtain a copy of the Society's rules.—GEO. PARRANT, *Ashby Lodge, near Rugby*.

[Rules can be had from Mr. G. J. Ingram, 50, Parliament Street, Westminster.]

ROYAL HORTICULTURAL SOCIETY.

MARCH 12TH.

THE first of the two March meetings to be held at the Drill Hall was a decided success in every way. The display of Orchids was remarkable alike for the diversity, superb quality, and unusual numbers. The exhibits pertaining to the Floral Committee were not so numerous, but the quality was high throughout.

FRUIT COMMITTEE.—Present: P. Crowley, Esq. (in the chair); with Rev. W. Wilks, Messrs. H. Pearson, J. H. Veitch, T. J. Saltmarsh, J. McIndoe, J. Cheal, G. Norman, J. Smith, A. Balderson, G. Wythes, G. Sage, J. Hudson, T. Glen, A. J. Laing, A. Dean, T. J. Miles, and J. Wright.

As will be perceived there were more men to do the work than work to be done on the present occasion—a reverse of the circumstances existing in many, if not most, gardens. The duties of the Committee, however, if light were pleasant—namely, in awarding a vote of thanks to Mr. G. Wythes for a dish of ripe St. John's Figs, produced by a heavily cropped tree in a 10-inch pot; and in examining and tasting Strawberries—*Stevens' Wonder* (fig. 42), which was unanimously awarded a first-class certificate. When we consider the size, freedom, colour, high perfume, and evidently good forcing qualities of this variety, and especially in conjunction with the singularly unfavourable season, this Strawberry must be considered of great value for ripening in February and March onwards.

One of our correspondents, Mr. J. Inglis, who knows what is good, has informed us that he had the pleasure of inspecting 2000 plants of this Strawberry in full bearing on February 21st in Mr. Stevens' Nursery at Hassocks, Sussex, and 50 lbs. of fine fruits had then been sent to market. At that time the plants were each bearing from eight to sixteen berries, many of them weighing from 1 oz. to 1½ oz. Several pots of a similar nature were brought before the Committee, and Mr. Glen, one of the members, observed he had seen plants last year ripening from twenty to thirty fruits, the largest girthing 6 inches.

The plants exhibited were remarkable for their dwarf character, producing tufts of leaves about 3 inches high, the majority of the leaflets only slightly exceeding an inch in diameter, the large scarlet fruits hanging down and resting against the sides of the pots. In general appearance the fruits appeared intermediate between Sir Charles Napier and Noble, yet quite distinct from both. They are as large as Noble, but firmer and decidedly of better flavour. The fruit may be described as large and angular, with a somewhat corrugated surface; skin bright red, in some cases quite pale; the seeds not deeply embedded; calyx segments reflexed. They vary in form, some being nearly conical, but the larger are more of the shape of the one figured, which may be taken as a typical example.

So far as we can learn Mr. Stevens knows nothing definite as to the origin of this variety; it seems to have come "by chance," and no doubt

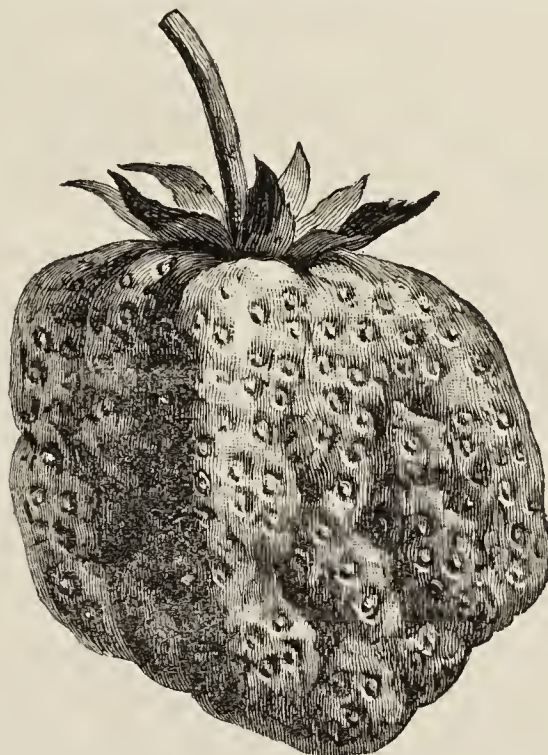


FIG. 42.—STRAWBERRY STEVENS' WONDER.

the possessor of it felt himself in luck's way when he gathered and sold 600 lbs. of fruit last year, when prices were high, and not less so this year, with his larger stock of plants now in full bearing. Stevens' Wonder Strawberry will be "looked after" for forcing, but the character of the plants exhibited did not suggest rapidity of increase, though in this respect they can only be rightly judged when growing in the open ground.

At the close of the business Mr. A. Dean, in well chosen terms, referred to the death of Mr. George Taber, paying a well deserved tribute to the value of his services and his genial character, concluding by moving the following resolution: "The members of the Fruit and Vegetable Committee, having learned with deep regret of the death of their esteemed and capable colleague, Mr. George Taber of Rivenhall, desires to give to that expression of regret the fullest publicity, and also requests that the purport of this resolution may be embodied in the minutes of the Committee's proceedings." This resolution was seconded by Mr. Saltmarsh, who said he had been acquainted with Mr. Taber for fifty years, and it was passed unanimously.

FLORAL COMMITTEE.—W. Marshall, Esq. (in the chair); with Messrs. J. Fraser, J. Laing, C. T. Druery, H. B. May, H. Herbst, George Stevens, Robert Owen, R. B. Lowe, J. H. Fitt, W. C. Leach, C. J. Salter, J. Jennings, J. W. Barr, Chas. Jeffries, Geo. Gordon, W. Briscoe-Ironside, Chas. E. Shea, J. D. Pawle, R. Dean, Chas. E. Pearson, H. H. D'Ombraire, E. Beckett, H. J. Jones, G. H. Ingleheart, James Walker, Ed. Mawley, Harry Turner, and George Paul.

Mr. J. Fitt, gardener to Earl Cowper, Panshanger, Hertford, exhibited a bunch of Ghent Azaleas, John Weathers (see below). Mr. Fitt also staged a vase of Calla æthiopica, the flowers and foliage being exceedingly fine. Messrs. Barr & Son, Covent Garden, staged a fine collection of bulbous flowers, conspicuous amongst which were pots of Galanthus Elwesii, Iris reticulata, Scilla bifolia, and flowers of Narcissus Odorus, Sir Watkin, Emperor, Horsfieldi, Obvallaris, Poeticus, Ornatus, and incomparabilis Cynosure. Anemone fulgens was prominent in the group, as also were plants of Spiræa japonica multiflora compacta, which is a compact free-flowering variety of Spiræa japonica (silver Banksian medal).

Messrs. W. Paul & Son of Waltham Cross, Herts, exhibited a group of flowering plants consisting of Clematis indivisa lobata, Camellia

Mathotiana, Imbricata, Madame Cachet, and Adelina Benvenuti. The feature of the group, however, was a number of well-bloomed plants of Messrs. Paul's new winter blooming and bedding Rose, Duke of York. This has the appearance of being a free-flowering variety of graceful habit. The chief beauty is seen in the bud, which is of a delicate blush-pink, deepening to rose as the blooms expand. The same firm also staged a varied collection of cut Camellia blooms, consisting of Conspicua, Mathotiana, both remarkably fine, and Alba plena, Reine des Fleurs, Princess Charlotte, Lady Hume's Blush, Vera, and Exquisite (silver-gilt Flora medal).

Messrs. James Veitch & Sons, Chelsea, were as usual to the front with Amaryllis, exhibiting many beautiful varieties, especially worthy of mention being Mrs. Montefiore and Prince Edward (for which awards of merit were granted), Euryalus, Elatior, Adrastus, and Javotte. A fine basket of Iris reticulata var. Krelagi, tastefully arranged, was staged by Messrs. Veitch (silver Banksian medal). A bunch of single blue Violets Princess Beatrice was staged by Mr. G. Nobbs, Royal Gardens, Osborne, Cowes, for which an award of merit was granted. A bunch of Violet Victoria was exhibited by Mr. Jennings, gardener to Leopold de Rothschild, Esq., Ascot, Leighton Buzzard. Mr. Geo. Bolas, Wirksworth, Derbyshire, exhibited a group of Daffodils, tastefully arranged with sprays of Ivy, for table decoration. Mr. F. Cornish, gardener to Dowager Lady Bowman, Joldwynds, near Dorking, staged plants of a seedling Primula, "Joldwynds," and a profusely flowered plant of Shortia galacifolia, to which a cultural commendation was accorded.

Messrs. Paul of The Old Nurseries, Cheshunt, staged plants of single Roses, Paul's Carmine Pillar and Polyantha grandiflora; and also a pot of the new feathered Canna Dr. Masters, and blooms of Cannas Mrs. Yasher, Comte de Bouchard, and Madame de Greve. An award of merit was granted to Mr. P. Blair, gardener to the Duke of Sutherland, Trentham, for plants of Eucharis Stevensi.

Messrs. John Peed & Sons, Norwood Road, London, staged a group of mixed flowering plants, composed of Cinerarias, Ericas, Primulas, Cyclamens, Lachenalia tricolor, Lilac Mary Lagraye, and Hyacinths, arranged with foliage plants (silver Banksian medal). Messrs. F. Sander and Co., St. Albans, exhibited spikes of Hæmanthus Kalbreyeri. Messrs. B. S. Williams & Son, Upper Holloway, London, staged a basket of Boronia megastigma. Mr. H. Briscoe-Ironside, Burgess Hill, Sussex, sent a plant of Chrysanthemum Stresa, with a fine yellow flower, and well clothed with foliage to the pot.

ORCHID COMMITTEE.—H. J. Veitch, Esq. (in the chair); with Messrs. Jas. O'Brien, De Barri Crawshay, H. M. Pollett, H. J. Chapman, W. H. White, F. Hardy, Chas. Pilcher, S. Courtauld, J. T. Gabriel, E. Hill, T. W. Bond, W. Cobb, J. Douglas, T. B. Haywood, C. J. Lucas, F. Sand, and H. Ballantyne.

Messrs. B. S. Williams & Co., Upper Holloway, arranged a charming group of Orchids margined with Palms and Ferns. The exhibit comprised some grand pans of Cœlogyne cristata alba, Phaius grandifolius, Lycaste fulvescens, Cypripediums Boxalli atratum, Chamberlainianum, Measuresianum, Williamsi, and Morganiae, a handsome piece of Dendrobium Wardianum, and others (silver Banksian medal).

A very beautiful collection of Orchids came from Messrs. F. Sander and Co., St. Albans, and comprised some magnificent forms. Amongst the most prominent were Dendrobiums nobile nobilius, nobile albi-florum, Dominianum, nobile Cooksoni, Ainsworthi, and others. Cypripedium Fowlerianum (award of merit, see below), C. Selligerum majus, C. miniatum, Cattleya Trianae virginale, C. albanense superba, Phaius Marthæ, P. Cooksoni, P. amabilis, Lælia Oweniana were also noticeable (silver Flora medal).

Two Cypripediums were sent by Mr. Bond, gardener to C. Lee Ingram, Esq., Godalming. One was a hybrid between Curtisi and hirsutissimum, named Refulgence, and the other a hybrid between Venustum and Ingrami, called Crossianum aureum. Mr. W. H. Young, gardener to Sir F. Wigan, East Sheen, sent a grand specimen of Platyclinis glumacea, and also a plant of Cypripedium Godseffianum superbum. W. Cobb, Esq., Tunbridge Wells, showed a plant of Dendrobium Schröderianum, Dulcote variety. Three plants of Eulophiella Elisabethæ were staged by Mr. J. Hamilton, gardener to Hamar Bass, Esq., M.P., Burton-on-Trent.

Mr. Jas. Cypher, Cheltenham, sent a few Dendrobiums, of which D. Apollo grandiflora received a first-class certificate, and will be found described below. Mr. J. Davis, gardener to J. Gurney Fowler, Esq., South Woodford, sent a few blooms of Cattleya Trianae. From Mr. Johnson, gardener to T. Statter, Esq., Stand Hall, Manchester, came a couple of Cypripediums, and some fine blooms of Dendrobium nobile nobilius.

Sir Trevor Lawrence, Burford Lodge, Dorking, sent a small collection of Calanthes, composed of many excellent varieties, also numerous other Orchids, including Lælia rubescens peduncularis, Masdevallia Schröderianum, Epidendrum Endresio-Wallisi, Masdevallia Fraseri (see below), Sophronitis grandiflora (see below), Cirrhopetalum picturatum, Spathoglottis Lobbi, Pleurothallis Roezli, and others (silver Banksian medal). E. Ashworth, Esq., Harefield Hall, Cheshire, was adjudged an award of merit for Dendrobium Cassiope Ashworth's variety, and a cultural commendation for D. splendidissimum grandiflorum (silver Banksian medal).

A small exhibit of Orchids came from J. Forster Alcock, Esq., Northchurch, Herts, and a plant of Cypripedium Sallieri Fittianum was exhibited by Mr. J. Fitt, gardener to Earl Cowper, Hertford. D. M.

Grimsdale, Esq., Kent Lodge, Uxbridge, sent two plants of Odontoglossums.

A group of Orchids interspersed with foliage plants was staged by Mr. P. McArthur, Maida Vale, W., and comprised some handsome Dendrobiums, Cattleyas, and Odontoglossums. Thos. Craven, Esq., Ashton-on-Mersey, showed a splendid plant of Dendrobium Wardianum album, and some very beautiful varieties of Odontoglossums. Fred Hardy Esq., Ashton-on-Mersey, showed Cattleya Percivalliana magnifica (see below), Odontoglossum Hardyanum, Cymbidium eburneo-Lowianum giganteum, and others.

A handsome collection of Orchids was sent by Messrs. H. Low & Co., Clapton. Dendrobiums, Cattleyas, Cypripediums, and Odontoglossums were particularly noticeable (silver Banksian medal).

Messrs. J. Veitch & Sons, Chelsea, stand of Orchids was comprised of several choice forms. Awards of merit were accorded to Phaiocalanthe irrorata rosea, Dendrobium enosmum virginale, and Lælio-Cattleya Myra, all of which are described below. Chysis Chelsoni, and several varieties of Cypripediums were also included in this group.

C. J. Lucas, Esq., Warnham Court, Horsham, Sussex, staged a small group of Orchids, amongst which were Cœlogyne spara (botanical certificate), and Mesospinidium vulcanicum.

CERTIFICATES AND AWARDS OF MERIT.

Amaryllis Mrs. Montefiore (J. Veitch & Sons).—A very handsome Amaryllis with excellently formed flowers of a white tinged green colour. The upper segments are streaked bright salmon (award of merit).

Amaryllis Prince Edward (J. Veitch & Sons).—This is a splendid variety with medium-sized deep crimson flowers (award of merit).

Azalea John Weathers (J. Fitt).—This is a very fine Azalea of the Ghent type, with rose coloured flowers, each having a yellow lower petal. It is very sweetly scented (award of merit).

Cattleya Percivalliana magnifica (F. Hardy).—This is an improvement on the type both in respect to size and richness of colouration (award of merit).

Cypripedium Fowlerianum (F. Sander & Co.).—This handsome Cypripedium is the result of a cross between C. Harrisianum superbum and C. bellatulum. The prevailing colour is deep claret, the dorsal sepal having darker veins. The petals are rosy claret sparsely spotted with brown. The pouch is of medium size and dull colour (award of merit).

Dendrobium Apollo grandiflora (J. Cypher).—This is the result of a cross between nobile pulcherrima and Ainsworthi splendidissimum. The flowers are exceptionally large and of rich colour. The sepals and petals are white tipped with bright rosy purple, and the inner part of the lip is very deep velvety crimson (first-class certificate).

Dendrobium Cassiope Ashworth's variety (E. Ashworth).—This hybrid is of no particular value as a showy kind. The flowers are almost pure white, tipped pale rose, the lip, which is very long, having a crimson throat. D. nobile albiflora and D. japonicum are the parents (award of merit).

Dendrobium enosmum virginale (Messrs. Jas. Veitch).—This is the result of a cross between D. intermedium and D. Endocharis. The flower is pure white, moderate in size, the lip being heavily blotched with deep velvety crimson (award of merit).

Eucharis Stevensi (P. Blair).—This Eucharis is apparently very floriferous, and has medium-sized, pure white flowers (award of merit).

Lælio-Cattleya Myra (J. Veitch & Sons).—This is a bigeneric hybrid between Lælia flava and Cattleya Trianae, the former being the pollen parent. The flower is a delicate cream in colour throughout, the inner portion of the lip being canary yellow veined with rose (award of merit).

Masdevallia Fraseri (Sir Trevor Lawrence, Bart.).—The colour of this Masdevallia is very rich crimson flushed magenta, and the flowers are of good size (award of merit).

Phaiocalanthe irrorata rosea (J. Veitch & Sons).—This bigeneric hybrid is the result of a cross between Calanthe vestita gigantea and Phaius grandifolius, the former of which is the pollen parent. The character of both parents is readily perceptible both in flowers and foliage. The colour is rose, shading to white at the edges of the sepals, petals, and lip (award of merit).

Sophronitis grandiflora (Sir Trevor Lawrence, Bart.).—This Orchid is too well known to need any description here (first-class certificate).

Violet Princess Beatrice (G. Nobbs).—This is a very large flowered single form of deep colour, but is somewhat lacking in scent (award of merit).

DISEASES OF TOMATOES.

At the afternoon meeting, with Mr. J. Douglas in the chair, an interesting paper on the "Diseases of Tomatoes," compiled by Mr. Collenette of Guernsey, was read by Mr. Weathers in the absence of the essayist. From the description of the diseases which attack Tomatoes in the Island of Guernsey, it was evident that the matter had received careful study by Mr. Collenette, who in the course of his paper stated that out of 36,000 inhabitants of the island 1500 of them gained a livelihood by growing crops for exportation, from which an income of half a million of money was annually realised.

Many people, said he, are of the opinion that the natural soil of Guernsey is favourable for Tomato growing. This, however, is not the case, for with the exception of an unfailing supply of potash obtained from the seaweed, the soil is not so fertile as that of many parts of England. The advantage is gained by the geniality of the climate. The houses are erected on as cheap a principle as possible, and are usually about 120 feet long by 30 feet wide. In spite of the suitability of

the climate the losses suffered from parasites and diseases are often great.

A pest found in almost every house, to a greater or lesser degree, is the common yellow blight (*Cladosporium fulvum*), which can, however, be kept in safe bounds if care is taken. A disease known as "black stripe" appears to have arisen since the introduction of Tomatoes into glass structures, and the only known remedy for this is the instant removal of affected plants. The disease, however, from which growers suffer the greatest losses is known by them as the "sleeping disease," from the fact that often whole houses of plants are attacked beyond recovery before it is found out. The first symptoms noticeable are slight drooping of the foliage and complete stoppage of growth, which takes the appearance of having been frost-bitten. Careful observation shows that the root first suffers by the loss of its fibres, and the time of the leaves commencing to droop may be marked as the period when the roots fail to supply them with nutrition.

In many instances of this kind the plants are not removed until the fruit is ripened. Seeds are generally obtained from this, and from researches made it has been ascertained that fruit obtained from such plants show unmistakeable signs of the disease. Seeds should therefore on no account be obtained from affected plants. Amongst the preventive means advised were the use of lime during the fallow, applying 10 to 20 lbs. of green copperas per rod during the fallow, and avoiding organic manure for as long a period as possible.

Another pest is the eelworm, which is too well known to need description. An excellent cure for this (though impracticable in Guernsey) is to thoroughly freeze the soil, or else by the application of lime, sulphate of iron, and seaweed. A hearty vote of thanks was accorded to Mr. Collenette for his interesting and instructive paper, and also to Mr. Douglas, Chairman, for presiding.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

THE twenty-ninth annual general meeting of the above Society was held at the Caledonian Hotel, Strand, London, on Monday evening, the 11th inst. Mr. George Gordon occupied the chair, and after the opening preliminaries called on the Secretary, Mr. Collins, to read the annual report, which was as follows:—

ANNUAL REPORT OF THE COMMITTEE.

The Committee in presenting to the members the annual report and balance sheet for 1894, have much pleasure in stating that the Society still continues to make most satisfactory progress both numerically and financially. Seventy-two members joined the Society during the year, nineteen lap-ed, and six died, one of these having joined only a fortnight previously.

The membership now stands at 547; the amounts standing to the credit of the deceased members have been duly paid to their nominees. The sick pay has been more than in the previous year, £117 7s. 8d. having been disbursed to twenty-eight members.

TREASURER'S ACCOUNT.

1894.	£	s.	d.	£	s.	d.
March 7th—Balance in hand				89	4	6½
1895.						
March 6th—Honorary members' subscriptions for						
1894	65	2	0			
Benefit subscriptions	821	16	3			
Benevolent subscriptions	59	3	9			
Convalescent subscriptions	66	11	9			
Management subscriptions	58	6	3			
Benefit arrears, 1893	18	0	9			
Benevolent arrears, 1893	3	17	6			
Management arrears, 1893	3	12	8			
Revocations, rul s, &c.	0	1	3			
Advertisements in report and balance-sheet, 1893,						
less amount transferred to dinner act. Total ...	9	13	6			
Credited	7	0	0			
				2	13	6
Dividends on investments				267	10	5
				1456	0	7½

The Chairman, in rising to formally move that the report and balance-sheet be received and adopted, said he was quite sure it would not be necessary for him to speak at any length to insure the motion receiving a hearty reception. The report that had been read by their excellent Secretary (Mr. Collins), and the financial statement presented by their not less excellent Treasurer (Mr. Hudson), were so eminently satisfactory that no strong arguments would be required to induce the meeting to pass them unanimously. He had in the course of his connection with public affairs listened to many annual statements, but he could not call to mind any that could have afforded more gratification to the members concerned than those that had been submitted to them. They impressed him, as he had no doubt they had impressed the members, with the important facts that the affairs of the Society are being managed with singular ability, that gardeners as a body are beginning to understand the principles of the splendid Institution to which they were fortunate in belonging, and that they are showing in a practical manner their appreciation of the advantages it offers to them in making provision for the proverbial rainy day, for old age, and for

Subscriptions to the amount of £821 16s. 3d. have been paid into the Benefit Fund during the year, exclusive of arrears. Both the Benevolent and the Management Funds have proportionately increased, the former having received additional strength by the life membership of Sir Stuart Knill, Bart., and Messrs. Jacob Wrench & Sons. A grant of £10 was made to the widow of the late Mr. Chas. Collins, a case calling for urgent assistance; two other sums amounting to £4 have been paid from the same fund.

The Treasurer's account is also very satisfactory, the chief item in which is the investment of £1000 during the year in the names of the Trustees. The annual dinner resulted in a most substantial gain to the Benevolent and Convalescent Funds. Arnold Moss, Esq., presided, and advocated the claims of the Society in a very clear and efficient manner. The accounts have been duly audited and found correct by Messrs. Gunner, Dixon, and Puzey, whose careful scrutiny deserves the best thanks of the members. The thanks of the members are also due to the officers of the Society for their services; also to those gentlemen who contributed plants, fruits, and flowers for the annual dinner. The Committee urge all the members to use their best endeavours to secure fresh additions to the Society, bearing in mind its motto—"Union is strength."

MANAGEMENT FUND.

	£	s.	d.		£	s.	d.
Receipts	132	15	2½	Expenditure	92	8	5
				Balance	40	6	9½
					£132	15	2½

DINNER ACCOUNT.

	£	s.	d.		£	s.	d.
Receipts	32	2	6½	Expenditure	31	10	3
				Balance in hand	0	12	3½
					£32	2	6½

BENEFIT FUND.

	£	s.	d.		£	s.	d.
Receipts	7212	1	6½	Expenditure	187	7	3½
				Balance to date	7024	14	3
					£7212	1	6½

BENEVOLENT FUND.

	£	s.	d.		£	s.	d.
Receipts	2222	0	2½	Expenditure	14	0	0
				Balance to date	2208	0	2½
					£2222	0	2½

CONVALESCENT FUND.

	£	s.	d.		£	s.	d.
Receipts	263	15	4	Expenditure	4	10	0
				Balance to date	259	5	4
					£263	15	4

1895	£	s.	d.
March 6th—By Sick pay from Benefit Fund	117	7	8
" Payments to nominees to deceased members			
from Benefit Fund	39	7	6
" Benevolent Fund	14	0	0
" Management Fund	92	8	5
" Convalescent Fund	4	10	0
" Investments, stamps, &c.	1052	12	6
March 6th, 1895—Balance in hand	135	14	6½
	1456	0	7½

Audited and found correct, March 6th, 1895.

GEO. DIXON
WM. GUNNER } Auditors.
T. H. PUZEY

those who may be left behind should they fall early in the great battle of life.

They would, he said, have gathered from the report and financial statement that there had been a large accession of new members, and a concurrent increase in the balances of the several funds. This advance could not be regarded otherwise than with a feeling of gratification, not so much in the interest of the Society as of the horticultural community, for whose benefit it was founded. The Benevolent Fund, although it had been drawn on to relieve several cases of distress, had increased from £2025 12s. 9½d. to £2208, or a gain of nearly £200 during the year. The Benefit Fund had increased from £6232 to £7224, or a gain of nearly £1000. The Voluntary Convalescent Fund, instituted a few years ago, had continued to make satisfactory progress, and the balance had increased from £191 to £259, a gain of £68, although grants were made to several members, who had been struck down by sickness, to enable them to have a change of air, which as we all know is so beneficial to those recovering from illness. The balance of the Management Fund was about the same as last year, and it did not appear

desirable there should be any material increase, for whatever surplus that may be available could probably be utilised to advantage in part to making the Society more widely known, and in part to increasing the remuneration of the Secretary. The total of the several balances was £9835 14s. 6½d., and it was of importance to know that this amount—which largely exceeds the liabilities of the Society—is invested in perfectly safe securities, and is a guarantee that every claim will be met in accordance with the rules.

It would not be necessary for him to discuss in detail either the report or balance-sheet; but there were a few points to which he would like to direct attention. It was of interest to know that there had been a substantial increase in the roll of both classes of members, and that the number of benefit members had increased during the financial year from 487 to 547, or a net gain of 69. It was still more interesting to learn that the contributions of the members to the Benefit Fund amounted to £821 16s. 3d., because that sum, taken in connection with some other figures that are given, brings out in strong relief the distinctive character of the Society, and the remarkable advantages it offers. The contributions to the Benefit Fund, as so well known to members, are applied as far as may be necessary in providing the weekly allowances to members during sickness, and the remainder is added in given proportions, according to the scale, to the deposits of the members standing in the books of the Society, which remain at interest until the members attain their seventieth year. Last year the total amount disbursed in sick pay was £117 7s. 8d., therefore of the total of £821 there was a sum of £704 8s. 7d. available for adding to the deposit account. There is nothing unusual in so small a proportion of the contributions to the Benefit Fund being distributed in sick pay, and in 1893 it was relatively smaller. The annual surplus has invariably been large, as proved by the fact that during the twenty-nine years the Society has been in existence the members' deposits have amounted, after the payment of the amounts belonging to deceased members, to £7224 1s. 6d., the balance of the Benefit Fund at the present time. The interest on the balance of this fund was last year £178 11s. 11d., and as this was £61 4s. 3d. more than was required for sick pay it follows that every penny contributed by members to the Benefit Fund has been an investment for old age.

If the members had belonged to one of the best of the general benefit societies the only advantage that would have been derived from this annual surplus would be the payment of £10, £12, or £15 to their representatives at their death. As illustrating the practical effect of this difference he stated that he was well acquainted with a gardener who joined the Order of Foresters three years before the United Horticultural Benefit and Provident Society was founded, and from that time to this he had paid contributions equal to their lower scale—namely, 6d. per week; and the benefits to which he is entitled are 10s. per week during illness, and £10 at death. On the other hand, a member of the United who joined on the lower scale when the Society was first formed had not only been entitled to 10s. 6d. per week in sickness, and would have a claim on the Benevolent Fund on his reaching his seventieth year, but has now standing to his credit the sum of £51 19s. 1d., or actually £7 14s. 7d. more than the whole of his contributions to the Benefit, Benevolent, and Management Funds. On the higher scale the sum placed to the credit of a member of similar standing would be considerably higher, and as a matter of fact a member has the sum of £78 11s. 3½d., or about £14 more than the whole of his contributions to the Society, the difference in both cases being due to the reproductive power of money when judiciously invested.

Members should impress facts of this kind on the attention of friends who are eligible; they should also point out that should a member be unable to continue his subscriptions he does not lose his deposit, but the amount to his credit is retained until he reaches his sixtieth year, when it is handed over to him. To show how important is this feature it was mentioned that at the present the substantial sum of £702 was standing to the credit of lapsed members. In conclusion the Chairman urged on the members the necessity of availing themselves of every opportunity for making the Society known to their friends, so that a much greater proportion of those engaged in horticultural pursuits might derive advantage from the great and highly beneficent work in which it is engaged.

Mr. W. Marshall seconded the proposition, which was carried amidst applause. Mr. E. G. Wheeler moved that 3000 copies of the report should be printed and circulated, which was agreed to. A proposal was made that in future the balance-sheet should be circulated before the annual meeting, which was left for the consideration of the Committee. Then followed the election of members of the Committee in place of those retiring, and on show of hands the result was as follows:—Mr. E. G. Wheeler, thirty-six votes; Mr. Wood, thirty-one; Mr. Boram, thirty; and Mr. T. Thompson, twenty-three. The Chairman declared these gentlemen duly elected.

Mr. J. Hudson moved that Mr. Collins should be re-elected as Secretary, and in addition to his usual stipend a bonus of £5 should be presented to him; this was seconded by Mr. Wheeler, and carried unanimously. A vote of thanks was proposed by Mr. Cole to the Trustees for their services, and duly carried.

Mr. Heals then moved that a hearty vote of thanks should be accorded to the Treasurer, Mr. J. Hudson; this was carried, and that gentleman replied in a few appropriate words.

A vote of thanks was proposed by Mr. Cole to the Press for the hearty and cordial manner in which they had assisted the Society. This was seconded by Mr. Marshall and carried, and Mr. G. Gordon

replied on behalf of the Press. Mr. W. Marshall, in conclusion, moved that a hearty vote of thanks be accorded to Mr. G. Gordon for the able manner in which he had conducted the meeting, a proposition which was carried with approbation.

At a special general meeting held afterwards a proposal was presented by Mr. Hudson, signed by several others, to increase the sick pay from 10s. 6d. to 12s. per week to members who subscribed at the rate of 6d. per week, and from 16s. to 18s. to those who subscribed 9d. per week, a week to consist of six days instead of seven, as heretofore. Mr. Marshall strongly objected to this proposition on the ground that it would not be feasible unless the subscriptions were raised. An animated discussion followed, and upon a show of hands the proposal was carried by twenty-seven votes to seven, amidst great applause. As no other business was before the meeting this ended the proceedings.



FRUIT FORCING.

Vines.—*Early Forced in Pots.*—Sufficient water or liquid manure must be afforded at the roots to prevent check through dryness, surfacing the soil with rich material, and if the roots extend beyond the pots feed them there as well. Supply atmospheric moisture by damping the paths and walls in the morning and early afternoon, also before nightfall, keeping the night temperature at 60° to 65°, day 70° to 75°, and 80° to 85° with sun heat, closing early to keep it at 85° or 90° while there is abundance of light. When the Grapes begin colouring still maintain the atmospheric moisture, and feed liberally, as the fruit swells considerably then, but cease the use of stimulants when coloured all over, and to enhance the quality still secure the temperature named with sufficient ventilation constantly to insure a circulation of air, and only give water at the roots to keep the foliage in good condition.

Early Forced Planted-out Vines.—In the houses started early in December the fruit is thinned and swelling freely, where top-dressings of the advertised chemical fertilisers have been used, and due moisture maintained in the borders. Steady progress is desirable during the stoning process, and phosphatic and potassic manures more advisable than nitrogenic, yet sufficient of the latter must be provided to secure steady growth, four parts bone superphosphate, two parts muriate of potash, and one part sulphate of ammonia forming a good mixture for siliceous soils, but where calcareous nitrate of soda should be used instead of the sulphate of ammonia. Four ounces of this mixture per square yard, every three or four weeks, will help weakly Vines wonderfully, supplying the top-dressing after properly moistening the soil with water and lightly washing the top-dressing into the border. This will need extra attention near the hot-water pipes for watering, always supplying the liquid at the mean temperature of the house, and if liquid manure is used it is preferable to supply it after the soil has been duly moistened, a watering canful then goes as far as half a dozen when the soil is dry. If the roots are near the surface a light mulching of sweetened short stable manure will be useful in respect of soil moisture, attracting the roots, supplying nourishing food and humus, the latter not being had from chemical fertilisers. Maintain a genial condition of the atmosphere by damping in the morning and at closing time, or early in the afternoon. Ventilate early, but not before 75° is reached, securing with sun heat and moderately increased ventilation a temperature of 80° to 85°, at which keep through the day under favouring external conditions, closing in time to secure a long day's work from sun heat, but not to raise the temperature over 90°, a temperature of 60° to 65° at night, and 70° to 75° by day artificially is suitable.

Houses Started at the New Year.—The Vines are in flower or advanced to the thinning, and require a night temperature of 65° to 70°, 5° more for Muscats, 70° to 75° by day artificially, and 80° to 85° or 90° with sun heat. This may be lowered about 5° after the Grapes are set, but whilst in flower the rather warmer atmosphere, kept moderately dry by a little ventilation constantly, is desirable. Shy-setting varieties should be carefully fertilised. Early Vines, with the roots to a great extent in outside borders, even where protected so as to exclude frost, are somewhat backward, and the prospect in some cases not of the best. A slight increase of temperature and a reduced supply of moisture for a short time is usually beneficial in such cases. During bright sunny days with sharp winds great care is required in ventilating, so as to avoid cold currents and sudden changes of temperature, this being effected by admitting air in small quantities at a time; reduce the ventilation in a similar gradual manner.

Houses Started Early in February.—The Vines breaking into growth freely require earlier attention in disbudding and regulating than those less free in starting, which is not always a bad sign, as fruitful growths are more tardy in pushing than the free, fruitless wood growths, and in any case it is always advisable to defer disbudding until the best breaks and shows for fruit can be readily discerned, then proceed gradually, and reduce the growths to such number and in such place as can have exposure to light when fully developed, and insure an even balance of growth. Likewise in stopping, too great a hurry may

give an undesirable check to the leaves, but when they are fairly formed at the stopping joint, say the size of a halfpenny to a penny, they may be stopped without prejudice at two or four joints beyond the fruit according to space. The laterals may be stopped at one joint up to the bunches, or be removed altogether, except from the two lowest leaves, those above the fruit being allowed to make two or more joints before being pinched, no more foliage being encouraged than can have full exposure to light, and where the space is limited stopping to one joint of the lateral and sub-lateral growths is most consistent with good results. Raise the temperature to 60° at night, 65° by day from fire heat, and 75° to 80° with sun heat, but this should be secured by the time the Vines come into leaf, as frequently stated in these columns.

Houses to Afford Fruit in August and September.—The Vines must now be started, making the inside border duly moist to the drainage, and if the Vines are weakly follow with some rather thick or strong liquid manure, not from minerals or chemicals, but from stables and cow-houses. Failing this, top-dress with blood and bone manure or native guano, something that will supply some amount of humus. On the other hand, if the Vines are quite vigorous enough, and produce somewhat long-jointed wood with thin flabby leaves, use chemical manures, especially silicates, and leave on the surface for watering in. If the soil be of a close and moist nature superphosphate, basic slag, and gypsum would be useful dressings, taking equal proportions and applying a pound per square yard, pointing in lightly. The outside border should receive similar attention, a slight protective material being all that is necessary to exclude frost from the soil at this time of year. A moderately moist atmosphere should be secured by damping the rods and every available surface two or three times a day, maintaining a night temperature of 50°, 55° by day artificially, and 65° with sun.

Late Houses.—Late Grapes require all the sun's light and heat that can safely be secured for them from April to September, with such assistance from fire heat as to secure steady development, sustain the progress made, and complete the ripening of the crop in the last named month. The Vines now started will have a chance to produce good sized and highly finished fruit, and such as possess good keeping qualities. Syringe the rods in the morning and afternoon, and damp the paths and borders before nightfall. Maintain the night temperature for these Vines at 50° to 55°; 55° to 60° by day, and 10° to 15° more from sun heat, with rather free ventilation from 65°.

Vines from Eyes.—Those rooted from buds in February and potted off should be shifted as soon as the roots reach the sides of the small pots into others 6 inches in diameter, placing them on shelves over hot-water pipes in preference to plunging them in bottom heat. Syringe them in the morning and early afternoon, damping other surfaces in the evening, so as to insure a genial atmosphere. Pinch the laterals at the first leaf, and subsequently sub-laterals as made to the same extent of growth, and if the lead divide into two remove the weakest and worst placed.

Cut-back Vines in Pots.—Those for fruiting in pots or planting out in prepared narrow and shallow beds for fruiting next season will be fit for turning out of the soil, and after cutting back any straggling bare roots, place in 7 or 8-inch pots, from which they may be transferred when established to 12 or 13-inch pots, or be planted out in the beds. If these Vines have been plunged in bottom heat they may be returned to it for a short time, otherwise bottom heat is not necessary, the preferable plan being to place the pots on slate shelves over hot-water pipes and train the canes about a foot from the glass, as they cannot have too much light, and it is important that the growth be solidified as made. Turfy loam, rather rough, with a sixth of old mortar rubbish, and a good handful of some approved fertiliser to every bushel of loam, form a suitable compost for Vines in pots. Clean pots and efficient drainage of clean crocks must be employed in the culture of these Vines. Keep moist and close until established, it being better to employ a slight shade in the hottest part of the day than allow the Vines to become stunted in growth.

Cucumbers.—Increased light and sun heat necessitates a correspondingly greater supply of atmospheric moisture, therefore damp the house in the morning and evening, syringing the plants lightly in the afternoons of bright days, or if dull damp the floors and walls instead of syringing the plants. A night temperature of 65° is sufficient, allowing an advance of 5° when the external air is mild, 60° being the minimum in the morning when the weather is cold. Get the heat up early after daylight, so as to have a temperature of 70° to 75° between 8 and 9 A.M., ventilating a little at the latter figure, with the prospect of an advance from sun heat, keeping the heat from this at 80° to 90°, and close early so as to secure the latter or even more from that source. Liquid manure may be given once or twice a week, and the evaporation troughs kept charged with it. Liquid manure, however, is best given alternating with top-dressings of chemical manures, Cucumbers requiring phosphoric acid, potash, and nitrogen in large amounts; hence five parts superphosphate, three parts sulphate of potash, and two parts nitrate of soda, mixed and applied at the rate of 4 ozs. per square yard, give good results in growth, fruit, and immunity from animal micro-organisms. Dressings of this nature about every three weeks keep the plants in good health, other conditions being favourable. Thin the fruits well, especially on plants just coming into bearing, stopping the shoots one joint beyond the fruit, removing superfluous growths and bad leaves as they appear, as well as tendrils and staminate blossoms.

Cucumbers in Pits and Frames.—The weather has given these complete quietus in some places, and in all the progress has been slow, as it was difficult to maintain the temperature at a point calculated to promote steady growth. Now the weather is more favourable the plants

are improving, and should be encouraged by careful attention to the linings, taking care to avoid rank steam, and be cautious in ventilating, maintaining the temperature advised for Melons. Continue to prepare material for making fresh beds and lining purposes, and sow seeds as successional plants are required.

Melons in Houses.—Hot-water-heated structures have proved their advantages over manure-heated pits and frames for forcing purposes, and chambered beds their superiority over rubble ones during the recent severe weather. Any plants shifted into larger pots, and being intended for planting out, should be given their fruiting quarters before they become very much root-bound. Pot later-sown plants when they show the second leaves, employing warm moist soil. Maintain a night temperature of 65° to 70°, 5° less on cold nights; 70° to 75° by day, admitting a little air at 75°, allowing the temperature to rise to 85°, with increased ventilation, advancing to 90°, closing by or before 80° or 85° is reached in declining order, and so as to advance 5° to 10°, sprinkling at the same time all parts of the house below the plants, even lightly sprinkling these on bright afternoons. Keep the bottom heat steady at 80°, or that of the soil 70° to 75°.

Melons in Manure-heated Frames.—The plants sown early in February will be fit to plant out, the bed having been made for them and the soil warmed, with a sweet atmosphere secured. Where a successional supply of fruit has to be maintained, and the means are limited to frames, a sowing should be made every fortnight or three weeks up to May, making fresh beds at similar intervals to receive the plants, so as to maintain an unbroken supply of fruit. Maintain a night temperature of 65°, and 70° to 75° by day, this being effected by timely attention to the linings and coverings over the lights at night, admitting air from 75°, but without lowering the temperature or admitting cold cutting air, and keep through the day at 80° to 85°, or even 90°, securing this well on towards night by closing early in the afternoon, having due regard to the safety of the foliage.

THE KITCHEN GARDEN.

Beet.—A scarcity of other vegetables has increased the demand for Beet, and the supply will in many cases be exhausted too quickly accordingly. In order to avoid a very long break in the supply the attempt should be made to procure some roots from the open ground earlier than usual. The Turnip-rooted or Egyptian form is the first ready for use. Sow seeds at once thinly in boxes, and place in gentle heat to germinate. When the seedlings are about 4 inches high harden, and plant 6 inches apart in rows 1 foot asunder, on a warm border. Protect from spring frosts by means of benders and mats, or a few branches of evergreens, and in this way obtain a number of very acceptable roots long before any sown in the open early next month will be ready for pulling.

Carrots.—For reasons already given there is certain to be an extraordinary demand for young Carrots, in fact too few of these are forthcoming in most seasons. If possible supplement those raised in a frame on mild hothed with another sowing, and also sow Nantes Horn in a warm border.

Jerusalem Artichokes.—Just now these are doing good service, and there is every likelihood of there being a greater demand for them in other winters. The white-skinned form is considered superior to the old coloured variety. Plant in rows 3 feet apart, running from north to south, in freely worked fertile but not richly manured soil.

Leeks.—In not a few gardens Leeks are the only green vegetable alive, and as a consequence fewer than usual will be allowed to run to seed. Very fine samples are sometimes desirable for showing in the late summer and autumn months, the plants being raised under glass. It is, however, during the late winter and early spring months when Leeks are most in demand. Sow immediately in the open thinly in drills 6 inches apart, and plant straight from the seed-bed as soon as the plants are 12 inches high. Musselburgh and Ayton Castle Giant are varieties hardy and good in every way.

Potatoes.—No crop better repays for deep cultivation and thorough preparation of the soil than does the Potato. A good depth of soil, not merely with a fine surface and lumps of cold, unworkable soil underneath, but well pulverised all through, is essential. Only a few early rows in warm positions should be planted as yet, deferring the principal work till April; then commence with the later varieties, and finish with the bulk of early and second early sorts.

Peas.—Only those who are able to raise a considerable number of plants under glass in pots, troughs, or boxes will be able to gather Peas very early this year. Sowing seeds in the open before the ground was thawed completely would have been no gain. Soaking the seeds in water till they have sprouted before sowing may result in a gain of several days. With the first early sorts may also be sown one or more of such good successional varieties as Gradus, Wordsley Wonder, Perfect Gem, Carter's Daisy, and such taller growers as Telephone, Duke of Albany, Criterion, or other selected varieties. All should be disposed in rows as far apart as the known height of the variety, and in deeply worked, well prepared soil.

Planting out Peas.—Any raised under glass must not be kept very long in the boxes or pots, or otherwise premature flowering will result. Those in small pots should be planted intact before they become much root-bound, while those in boxes ought to be shaken nearly clear of the soil so as to save the longest roots, the latter being sunk deeply in trenches formed with a spade at planting time. Plant moderately thick, as it is a quick, heavy crop rather than a more continuous one that is most to be desired, and fix the soil about

the roots. Protect with Fir branches for a time. Wood ashes well mixed with the soil to be occupied by Peas will hasten and sustain growth considerably. Where there is a heavy demand for Peas, raise more early and second early varieties under glass and duly plant out, or there may be a gap in the supply owing to not being able to sow in the open earlier.

Early Turnips.—The snow saved some portion of those not stored, but all the same there is every likelihood of an early scarcity. Sow in a rough frame on a very mild hotbed if possible, or between boards on edge on a warm border, protecting with mats at night. The Early Milan, of which there is now a good white form, is the best for present sowing. Sow thinly, and cover with sifted soil. Directly the seedlings are seen dust them with soot and lime and repeat the dose occasionally, or the Turnip beetle will soon make short work of them.

THE BEE-KEEPER.

APIARIAN NOTES.

APPLIANCES.

THESE should be overhauled and put in good order, so that when required there will neither be necessity to search for them nor to put them into condition when there is not time to spare to do so.

VARIETIES OF BEES.

It would be very interesting as well as instructive were bee-keepers to note the various characteristics of their bees, their faults or failures, as may be observed throughout the year. I have no hesitation in affirming that the Carniolan is the hardiest of any race of bees; also mild in temper, as well as good and cleanly in storing honey. Strongly do I wish also that some of those renowned bee-keepers who have said so much against Punics were here in a good honey flow to witness the energy of these maligned bees. I hope we may have several honey days in succession the coming summer to test the pure ones. Syrians, like the crossed Cyprians, have also proved good honey gatherers. I have not fed mine for years. The large gathering of 33 lbs. in one day was by crossed Syrians.—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES.

A FEW words on the subject and an exchange of opinions may be of interest at the present time. Those who are already bee-keepers will probably take the first opportunity of examining their stocks to see how they have fared during the severe weather which has lasted only too long. Some will have passed through the ordeal without the loss of a single stock; others, through various causes, will have suffered severely, and will be wondering if bee-keeping is really worth the trouble. Find out, if possible, the cause of the disaster, and guard against the same mistake in the future, as the severe weather may not be to blame altogether. It may be a leaky roof, insufficient covering, shortness of stores, or a combination of the whole which has caused the loss of many colonies.

The young beginner, after hearing of some friend or neighbour who has been unfortunate, perhaps in his first year of bee-keeping, may be inclined to throw it up in disgust. To such I would say, Try again. Read what is said week by week on the subject in the *Journal of Horticulture*, ask questions through the same source on anything you do not understand connected with bee-keeping, and after another year's experience bee-keeping may have become a source of both pleasure and profit.

SUPERSTITION IN BEE-KEEPING.

In the present enlightened age one would have thought this was a thing of the past, but such is not the case, at all events in this neighbourhood, the midland counties. Some time ago a poor man who owned a few stocks of bees in straw skeps died. I bought the bees, and a few days afterwards removed them. Owing to the severe weather I did not disturb them, but afterwards, being anxious to give them dry floor boards, I lifted them off their stand, and to my surprise found on each of the floor boards a piece of cake, which had formed into a wet mass owing to the moisture that was on the board. On inquiry I find the practice is common among bee-keepers, that on a death in the family the bees must be fed with cake, and a piece of crape be placed on each of the hives. If they omit doing this, they consider the bees will dwindle away and die.

The same people still clang the poker and shovel or anything that will make a great noise at swarming time, under the impression that bees will not settle unless this is done, the straw skep in which they are hived being well saturated with a mixture in which beer and sugar form a part. The only wonder is they stop in the hive at all. I have convinced several that the noise and washing out of the hive is quite unnecessary. The former cannot do any harm,

but the latter is positively injurious, as before swarming, bees fill themselves with honey, consequently they have a great amount of unnecessary labour to clean their hive before they can commence comb-building. No wonder they often fly away to more comfortable quarters.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

J. Carter & Co., High Holborn, London.—*List of Grass Seeds.*
Collins Bros., & Gabriel, 39, Waterloo Road, London.—*Bedding Plants.*
Cooper, Taber & Co., Limited, Southwark Street, London.—*Agricultural Catalogue.*
Carter, Page & Co., London Wall, E.C.—*Seeds and Garden Requisites.*
Hogg & Robertson, 22, Mary Street, Dublin.—*Book of the Farm.*
G. Ketten, Luxembourg.—*New Roses.*
Vilmorin, Andrieux et Cie, 4, Quai de la Mégisserie, Paris.—*Catalogue of Seeds, Trees, Shrubs and Plants.*

TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Disbudding Azaleas (*Know Nothing*).—You have not made the matter clear. If you mean "removing all the wood growths," we do not advise this being done for obvious reasons.

Examinations in Horticulture (*T. S. and others*).—All requisite information can be obtained on application by letter from the Secretary Royal Horticultural Society, 117, Victoria Street, Westminster, London, S.W.

Heating Sloping Houses (*A. F.*).—There will be no difficulty in heating the structures, provided the boiler is at the lower end. It is not necessary that the pipes be level, but they may "rake" with the house, the flow pipes steadily rising up one side, and the returns falling down the other; but the bottom of the feed cistern must be on a level with the highest part of the piping, and at that part an air pipe with tap should be inserted for insuring circulation.

Culture of Cardoons (*G. H.*).—They are grown practically in the same way as Celery, but the rows must be farther apart, because more soil is needed for earthing. In very wet soils they are best sown or planted on the surface, the site being well enriched. The seeds may either be sown in April where the plants are to grow, thinning them to a foot apart, or raised elsewhere, grown sturdily, and transplanted: but they must not be raised too early or drawn in their early stages, or most of them may form flower stems and be of little or no use.

Mildew on Peach Trees (*Nemo*).—Your trees are attacked by mildew, and the sooner you apply a fungicide the better. The following preparation is extensively used:—2 lbs. of quicklime, 3 lbs. of sulphate of copper, and 20 gallons of cold water. Dissolve the sulphate of copper in cold water for two hours in one vessel. In another pour a little water by degrees on the lime, mixing it well till it becomes a milky liquid; then pour the latter into the former, stir them well, and add to the 20 gallons of water already provided. It should be applied at intervals of three weeks, and always used fresh.

Grafting Plum Stocks (*Rugeley*).—The large Plum stocks would be best grafted on the whip or tongue system, taking care to let the barks join exactly on one side, then you may have a chance of success, though large stocks are very undesirable for grafting, as neither cleft nor crown methods are advisable for the Plum, for the wood is very liable to die back, or the bark becomes dry, so as to prevent union, and very often gumming ensues and is fatal. Of course, you can try inserting the scions under the bark, but it is not a good method for stone fruits, as there is not only danger of failure, but of the grafts being broken off by winds. With such large stocks the better procedure is to try the whip grafting, and if the scions fail secure some young shoots from the stocks and bud these as near the main stem as possible, as in budding standard Roses. The bark on the main stem of such stocks will be too thick for satisfactorily operating on them.

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Journal of Horticulture.

THURSDAY, MARCH 21, 1895.

ORANGES UNDER GLASS.

IT is an easy matter to work up a good stock of young Orange trees. The first step to be taken in this direction is to extract the necessary number of pips from imported Oranges or Lemons in the spring, and sow them thinly in a shallow box filled to within 1 inch of the top with light sandy soil, covering the seeds with some of the same. Water through a rosed can, and place in heat, covering the box with a square of glass, and the latter with a little moss, thereby hastening the process of germination by excluding light and air, and therefore maintaining a more uniform degree of warmth and moisture about the seeds than would otherwise be obtained. When the seedlings are about 2 inches high place them singly in small 60-size pots, giving them a compost consisting of five parts light sandy loam, and one of sweet leaf mould to grow in. Make this moderately firm about the roots in potting, water, and keep the soil moist. Let the plants have a position near to the glass in a warm house to secure sturdy growth. Keep the plants free from the attacks of scale and other insect pests.

By the following spring, that is, twelve months from the time the seeds were sown, the young plants will have stems nearly as large as a lead pencil. These should be cut down to within 1 and 2 inches of the soil as stocks on which to engraft scions taken from established plants of the Sweet Orange. There are several ways of grafting, but that known as whip or tongue grafting is the best. Insert the knife about three-quarters of an inch from the top and cut off a wedge-like slice of wood in an upward direction, nearly halving the stock at the top. Then make a cross downward notch at the base, also corresponding cuts in the scion to enable this latter being tongued into the stock. The stock and scion should be prepared with a sharp knife to insure clean even cuts being made, so that the wood and bark surfaces shall fit closely. Bind with strong matting, then with damp moss as a means of keeping the stock and scion moist by being damped over three or four times a day with the syringe until they become united. The process of grafting takes longer to describe than perform. When the plants have been grafted

stand them closely together in one or more hand-lights rather more than half filled with sawdust or leaf mould in a forcing house. Put the covers on, keep quite close. Shade from sunshine, and damp the plants gently three or four times a day with tepid water until the union of stock and scion is effected. In selecting grafts choose short-jointed, clean, healthy shoots about 2 inches long and the same thickness as the stocks.

As soon as the engrafted plants have made a little growth they should be gradually inured to the full light and atmospheric temperature of the structure in which they are growing, and be afforded a position near the roof glass to encourage and promote short-jointed and consolidated growth. When the plants have made 3 or 4 inches of fresh growth they should be shifted into 3½-inch and 4½-inch pots according to variety and the headway made by the individual plants, affording them a compost consisting of four parts sound fibrous loam, and one of leaf mould and pulverised horse droppings, with a dash of sharp sand added as a rooting medium, afterwards shifting the plants as they require more room at the roots, and until they have attained to the desired size, giving good drainage in every case.

Plants of the Tangierine and Mandarin confined to 6-inch pots are very useful and attractive for decorative purposes in their flowering and fruiting stages. Well-conditioned Orange trees generally bear flowers and fruit in various stages of development at the same time, thereby yielding a pleasing combination of flowers of pearly whiteness and delicious fragrance, green and golden fruits intermingling with handsome shining green leaves. The varieties St. Michael and Maltese Blood, as is pretty well known, produce large fruits of fine quality, the fruits of the Tangierine and Mandarin being much smaller as well as earlier in ripening.

The plants will grow, flower, and fruit freely if given a light well constructed house to grow in, and if a minimum temperature of 50° be observed during the winter months, 60° in spring time, running the temperature up to 80° and 85° during the summer months, air being freely given during the heat of the day, and the soil kept uniformly moist at the roots and the trees damped at closing time, good crops of fruit of high quality may be gathered therefrom during the autumn and winter months. The trees will be greatly benefited by frequent supplies of diluted liquid manure at a temperature of from 75° to 80° being given at the roots while swelling their crops, and by way of a change occasional surface dressings of any of the advertised chemical manures may advantageously be given immediately before applying clear tepid water at the roots.

In shifting the plants into large pots or boxes the turfy loam should be used in a rougher state—that is, in larger pieces—than would be advisable for plants being placed in pots under 12 inches in diameter and depth, adding to each barrowful of the loam a 10-inch potful of fine crocks and small charcoal to insure porosity and a 6-inch potful of soot, the whole being well mixed before being used.

In some Orange houses the central ground space is divided into four parts or beds for the reception of Orange trees by two tessellated pathways crossing each other in the centre of the house, and communicating with one of the same description running between the side and end stages and the central beds. In preparing these four beds for planting the trees in the original soil should be excavated to a depth of 3 feet, 6 inches deep of concrete being laid in the bottom, placing therein and on a level with a surface of the same, rows of gutter bricks at intervals of about 4 feet, sloping to one side into a main gutter connected with a waste water drain outside; and on this concreted bottom lay from 9 to 12 inches deep of brickbats, broken fine on top, covering these with thin turves grass side down, thereby securing perfect drainage for the plants. This done, the remaining space should be filled up with a compost consisting of the ingredients described above, and in the proportion indicated. The soil about the roots should be quite moist before the plants are turned out of the pots. The

balls of earth and roots ought to be pricked round with a pointed stick to liberate any of the latter that may have become matted or root-bound before placing the plants in position at proper distances from one another in the beds. In planting ram the soil firmly about the roots of the individual plants with blunt wooden rammers, afterwards filling up the intervening spaces and treading the same well together. In every other respect the treatment of trees thus planted is the same as that recommended for trees in pots.—H. W. WARD.

PICTURESQUE GARDENING.

"UNERRING Nature," in the disposal and treatment of the wildlings, contributes so much enjoyment to her devotees that it is not a matter of surprise to find many of the calling, hedged about by divers rules, lines, and other restrictive agencies, gravitating to the free and unfettered original. That it is so is obvious. That it may not be freely acknowledged to be so is another matter. The bonds of custom and of fashion are rather to be gently loosed than rudely snapped. In one instance at least, a writer, liberal minded yet critically disposed—one who would rather lead a good fashion than follow a bad one—has hit the avocation hardly when stating that the gardener is a man whose chief delight is in rearing thousands of little toy plants to be clipped and pinched into orthodoxy. Yet, probably gardeners—those who have been most patient under this form of tribulation—have been the most eager to escape from the thralldom.

It is not uncommon nowadays to find in some fine old gardening establishments, balloon trellises, pyramidal wire structures, and other instruments of torture, relegated to the relic chamber, yclept the store room; whilst the victims, Allamandas, Bougainvilleas, and a host of tropical visitors festoon the houses at their own sweet will, saving that little wholesome correction needful to assert authority, and prevent the plant houses from being turned into Liberty Hall.

These are signs of the times; visible in the houses, more discernible in the garden, and so much in evidence in many a woodland walk or picturesque part of a demesne, that our critics may be impressed with the idea that the gardener is abroad. As a matter of fact he is very much at home, and never more so than when breaking away from formality and catching the spirit of that witchery, the inimitable worker, Nature, throws over her handiwork. Yet, whilst discipline can allow but little more than a suspicion of freedom in the houses or garden proper, we can, circumstances permitting, go forth into the open, contributing with a free hand at a minimum of expense and labour.

These are but few demesnes, large or small, which do not present opportunities for picturesque gardening. The subject is a broad one, and is neither bounded by the walls of public parks or private places, for it includes many a piece of no man's land by the king's highway. So thought a cottager who beautified "that nasty ugly spot"—viz., a heap of road scrapings near her dwelling by sowing a handful of *Nasturtium* seeds on it. Unlettered probably in the higher things of gardening, yet imbued with the spirit of beauty in Nature, which despises not the common things giving means to an end. Of such is the kingdom of picturesque gardening.

Yet with us there is a limit to work, if not to thought; work with us must begin at home, though to specially favoured ones it need not stop there. Our immediate concern is to break away from the beaten track, and these are the strongest inducements to do so, for he who loves his plants in the abstract is anxious to do the best he can for them. An observant eye cannot fail to note that on the larger scale, and amid the varied aspects of an estate, there are to be found conditions presenting the ideal of situations for some special plants which are not quite happy in the orthodox bed or border. This is a consideration apart from the more natural surroundings that here obtain, and which with some plants is an essential not to be overlooked. Another point is, that once we are outside of the gardens or kept grounds the bugbear of tidiness no longer pursues, demanding the removal of dead or dying foliage acting as natural protectors during the winter season. Even in those localities with uncongenial surroundings are to be found some sheltered nooks which form veritable sun-traps. Also the other extreme, which, with the happy medium, offer a wide field for the enterprising planter. Once we step out into the possibilities of the natural style a new world of work and beauty is opened up, not necessarily in opposition to formality; each has its place and purpose, and those who feel that it is so, and should be so, have room in their hearts for both.

Considerations have to be entertained, in some cases, of setting forth plants to do or die, for here the watchful eye and ministering

hand come but at intervals, perhaps not at all. Yet it is a thought which need carry one but a little way from the object. Indeed, if but a moiety of the care and anxiety our orthodox work entails could not be lost sight of here it would be fatal to its inception. Order—our interpretation of it—must cease to exist, freedom must reign, and if the foster mother deals unkindly with some kinds submitted by us to her rough and ready methods, neither force nor suasion need be persisted in, for they are out of place in wild gardening.

Yet enthusiasm must not deny that there are two sides to this question. In some cases the gardener may roam the whole estate, viewing the possibilities, yet precluded from acting beyond the sphere of his own dominion here, not daring to cross the frontier. I would say, Go up to the very edge of the boundary and beautify those barren spots which may often be noticed outside of the best kept gardens, and there may be reasons for supposing that where the artistic eye roams the hand may one day be permitted to practise the peaceful art. Other phases there are, too, on this side of the question, which from one cause or other of varying circumstances may elicit the remark, "Not practicable;" we (gardeners) are not free agents in these matters, but he who makes but the smallest contribution strikes a blow for freedom—the freedom of picturesque gardening.

The question of ways and means is too vast to receive but more than a passing glance here. There are, I think, but few who can disassociate the presence of water from the picturesque; from the streamlet to the river, or pond styled by courtesy the lake, which in its more ample proportions is entitled to the designation. In the sequence of things natural where water is there we look for rocks, and given this happy combination we have but to add the bright colours or graceful forms of plant life to complete the picture.

So many of our truly hardy plants are seen at their best advantage in the neighbourhood of water. Those who have seen a bold plantation of the Torch Lily (*Tritoma*) stretching to the water's edge on a promontory or islet, or the feathery Pampas Grass receding in the depths of a valley, cannot but think they are the right plants in the right place. Bamboos, New Zealand Flax, and similar foliage plants so well able to hold their own, are appropriate to the position; whilst on the sunny bank the German Iris, or on the boggy margin *Iris Kämpferi* add their charms to the scene.

Natural rockeries are too often monopolised by the rank growth of indigenous vegetation; or perhaps the reverse obtains, and a barren face may be rendered attractive by veiling it with some of our elegant creeping or trailing plants, whilst clefts and crannies form suitable pockets for the riches of the alpine flora. So, too, may the unsightliness of a disused quarry be converted into beauty, and form the happy home for many plants out of the abundance we possess.

Turning to the woodland walks, and skimming the bulb catalogues, a multitude of lesser sorts suggest their suitability to this position, and larger kinds, such as Lilies or *Hyacinthus candicans*, might well be employed to furnish some cosy clearing 'midst the trees. So may Nature's chief agent in distribution—Man—make such investments as will yield a high rate of interest in the unlimited funds of picturesque gardening.—E. K., *Dublin*.



DENDROBIUM APOLLO GRANDIFLORA.

THE Orchid that attracted the most attention at the Drill Hall on the 12th inst. was *D. Apollo grandiflora*, a flower of which is shown in the woodcut, fig. 43. Opinions were unanimous that this variety, which is the result of a cross between *D. nobile pulcherrimum* and *D. splendidissimum*, was the finest that had been seen, and was almost perfect both as regards size and colouration. The substance of the flower was extraordinary, and Mr. J. Cypher, Cheltenham, who was accorded a first-class certificate for it by the Orchid Committee of the Royal Horticultural Society, is to be congratulated on this superb acquisition. The sepals and petals were pure waxy white, shading to bright rosy purple at the tips. The petals were of great breadth, as also were the sepals. The

colour of the lip is white, with a showy patch of deep violet-crimson covering upwards of one-half of the whole. The size of the lip is almost phenomenal, and is, perhaps, the best point about the hybrid.

LÆLIA CINNABARINA.

IF, as stated by your correspondent (page 223), I have not done justice to this superb species, it is certainly not for lack of admiration personally, as I consider it an exquisitely beautiful Orchid. I cannot call to mind the exact words I used in the short note that was suggested by seeing the plant referred to, or how far I extolled its charms; but from six to ten flowers is certainly a fair average number for this species, though it may and evidently does occasionally produce more. I should, however, be inclined to attribute this to exceptional energy in the individual plant or pseudo-bulb rather than as a characteristic of the variety, for it is well known that Orchids of many kinds frequently produce spikes above the average. Your correspondent is none the less to be congratulated



FIG. 43.—DENDROBIUM APOLLO GRANDIFLORA.

on having grown such a beautiful Orchid so well; and if this is his usual experience with this species I am sure a few notes on his mode of culture would interest many of your readers, including—H. R. R.

ORCHIDS AT HARROW WEALD HOUSE.

THE collection of Orchids at Harrow Weald House, the residence of H. Grinling, Esq., is a very good one, and in the experienced hands of Mr. W. Rapley is likely to improve. We have received a small box of flowers, comprising some magnificent forms of *Cypripediums insigne* and *barbatum*, *Angræcum sesquipedale*, a superbly coloured form of *Cattleya Trianae*, and a handsome spray of *Cœlogyne cristata*. All the blooms bore unmistakeable evidence of excellent management.

CALANTHES AND THEIR CULTURE.

AMONG winter-flowering Orchids there are few, if any, that can surpass *Calanthes* for usefulness, either for the embellishment of the mansion, or the maintenance of a bright and pleasing arrangement of flowers in a somewhat dry, intermediate temperature, flowering as they generally do with us early in October and continuing to keep up a display till the end of February. I am referring more particularly to the deciduous section, including *C. Veitchi*, *C. vestita oculata rubra*, *C. lutea*, and *C. nivalis*. Though there are several grand additions to the above varieties of more recent introduction, they are not sufficiently known, or even obtainable, to be generally grown, the two finest varieties that have come to my notice being *C. gigas* and *C. Schröderi*, both of which look like making strong growers, and each having been awarded first-class certificates.

We have not made such rapid strides in the cultivation of *Calanthes* during the last twenty years as we have in many other sections of Orchid-growing, for we have it on good authority that even previous to the year 1877 growers had produced spikes 6 feet long and pseudo-bulbs 18 inches high, such specimens of good culture being rarely met with. I am inclined to think that the majority of cultivators of the present day attempt to grow them in far too stringent a manner—firstly, in the potting compost not being sufficiently rich for the encouragement of a strong, luxuriant growth; secondly, in the lack of liberal chemical feeding, so

beneficial during the summer and autumn months; and thirdly, resting them in too low a temperature.

I have tried various methods of culture, in pots, pans, and baskets, but much prefer the pot system. As regards compost we have varied our trials, but the mixture with which we have been most successful consists of the following—equal parts good fibrous peat and loam, one part well dried cow manure, and one part, in equal amounts, of charcoal and potsherds, the peat, loam, and cow manure being broken up quite roughly, in size not less than pigeons' eggs, some larger, the charcoal rather less, and the potsherds smaller, though free from dust. I much prefer the crocks to sand, as I find the latter in such an open compost immediately washes into the drainage, doing more harm than good in the preparation of the pots and drainage.

All must be thoroughly clean, as the roots will cling to pots with the greatest tenacity—in fact, it is impossible, when thoroughly active, to take the plants out of their pots without injuring the roots. The size of pots we use is 5-inch for medium single bulbs, 6-inch for large bulbs, and 7 or 8-inch for two or three bulbs. The latter we use very little, the others being most useful generally. In potting we afford about half drainage, on this a thin layer of moss, filling up to the rim with the compost, then placing the bulb in the centre and packing sufficient material around it to keep it in position by pressing only moderately firm. We then place them on shelves, near the glass, in a warm plant house with a minimum temperature of 65° and maximum of 90° or even 100° in bright days by closing early, and maintaining a very humid atmosphere (such as *Dendrobis* delight in when making their growths), giving no water till growth is well on the move.

As the days lengthen and the growth advances they are removed to a three-quarter span pit and elevated on shelves sufficiently below the glass to keep the foliage from touching, shading them as lightly as possible, and increasing the moisture at the roots, syringing well under the foliage. We find ours ready for potting generally early in March. Some cultivators prefer resting them in the old soil, but we prefer shaking them out immediately after the flowering season is over, and storing them in pans of moss on warm dry shelves. (A few weeks ago a writer in one of our gardening periodicals was recommending us to place three good bulbs in a 5-inch pot. Bulbs 1 foot high and 7 inches in circumference would have but little space for future development were that method adopted.)

By the end of June the plants will have well filled the pots with roots, then we commence feeding with liquid manure from the cow-stalls, using it weak at each alternate watering. We also use the same kind of liquid for damping down the last thing at night; it imparts a deeper colour to the foliage, and is objectionable to all insect life, continuing to feed both at the root and in the atmosphere till the flower spikes commence opening, when a gradual reduction takes place, so that by the time the blooms are about half open the moisture is quite withheld, admitting air on all favourable occasions with a standing temperature of about 60°.

I find this the most critical period of their existence, as they are often used for house decoration or arranging with other plants in glass structures, oftentimes subject to cold draughts or moisture, low or stagnant atmosphere, such as I fear is the prime cause of the dreaded spot. With the above treatment we have produced many spikes 5 feet 9 inches long with pseudo-bulbs 12 and 14 inches high, objects of no mean interest and usefulness during the dark winter months.—J. FRIEND.

FLORAL FACTS AND FANCIES.—8.

MR. FORTUNE was the means of introducing to our gardens many capital species, and one of the best is the Winter Jasmine, *J. nudiflorum*. It has proved well able to stand our ordinary winters, though I fear the recent arctic weather has dealt hardly with it in exposed places. By judicious training it will produce a succession of flowers during the winter months against houses and walls, imparting at a dull season a cheery aspect both to the mansion of the well-to-do and the cottage of the labourer. Fittingly, it is a symbol of grace or elegance, and the familiar white Jasmine represents "amiability." The *Ipomæa*, sometimes called a Jasmine, shows us "attachment," and another, also thus named, properly the *Bignonia*, by contrast "separation." This significance may have been given from the fact that the plant has left its native home, but Mr. Tyas remarks it is in consequence also of its being separated from an elegant humming bird, which is attached to the *Bignonia* in America, building its nest within a rolled leaf, and feasting on the honey yielded by the purple bells.

That a popular flower of very different habit, yet with a name not unlike the last—the *Begonia*—should represent "deformity,"

seems curious. This might have been suggested from the irregular form of the leaves of some species, or by the disproportion they have often to the size of the plant. The Virginian Creeper, which will thrive amid the smokeiest haunts of men, while it spreads itself so rapidly and persistently over any available space, reminds us of "clinging affection." To the Hop, occasionally cultivated in gardens as an ornamental climber upon trelliswork, belongs no pleasant character. Its Latin name associates it with the wolf, and since the time of Pliny it has been a symbol of "injustice," because it was supposed to twine round and also injure trees which could not defend themselves from its attacks. Bad, too, is the repute of the Fumitory, some varieties of which may be seen in flower during the spring; owing to its bitter and nauseous taste it was made a representative of hatred. To the Chinese we owe the favourable meaning of the *Glycine* (*G. sinensis*), a creeper which tells of "faithful friendship," covering walls or trees as it does with a succession of the pale blue and fragrant blossoms.

We are now eagerly expecting the appearance of flowers upon the Almond tree, a welcome intimation that our much-delayed spring is near at hand. The Easterns compared its bloom to the hoary head of an old man; from an unknown date these have been representative of hope under disadvantages. A Greek story connected the Almond with the history of two attached lovers, Demophon and Phyllis, who were obliged to part, but the absence of Demophon was so prolonged that at last the hope of Phyllis failed, and out of compassion the gods transferred her into this tree. But when he did return, though it was winter, the effect on the tree which enclosed Phyllis was such, that it became suddenly covered with flowers. Besides this meaning, the Almond in our cool land is an emblem of "thoughtlessness," for it seems to act regardless of consequences; flowering when it does, the early formed fruits are destroyed by frosts or cold winds, and few reach their maturity. The double meanings that belong to some is a notable feature of flower lore. We have an example in another plant of the spring, the familiar Wallflower. Queen of the Cress tribe it has been styled, one of the favourites of the old troubadours, often growing seemingly wild, yet not, 'tis said, a British native. Charlemagne the Great, warlike though he was, had a taste for flowers, and the Wallflower was a species he recommended and helped to distribute. Possibly, it was introduced to us by the monks, and if not by some Crusader, and it became a type of "lasting beauty," because the pyramids of bloom may be seen in gardens through the greater part of the year. But more than this, the Wallflower decorates decaying masonry, as venerable walls and neglected buildings afford it a home. Fragrant amid desolation, it is a plant "faithful in adversity." As the poet Moir (Delta) remarked:—

"It sheds a halo of repose around the wrecks of Time,
To beauty give the flaunting Rose, the Wallflower is sublime."

Still, something may be said in favour of the garden Rocket, especially the double varieties, with spikes a foot in length. They tell of "rivalry," for the plant seems as if it would excel its relatives of that family. Gerard was proud when he obtained the white and purple kinds from Italy about 1597, and planted them in his Holborn garden; but the Rocket does not take kindly to the neighbourhood of London, though a clay soil is suitable for its culture. Some people retain a liking for this old-fashioned flower, overlooked through the rush of novelties. "Indifference" is proclaimed by the growth of the perennial and evergreen Candytuft; its white scentless flowers disregard the changes of the seasons, and fear neither summer's heat nor winter's cold. The Ten-week Stock illustrates "promptitude," since it runs its course with speed and punctuality. As a family, the Stocks represent "constant sweetness;" they are always fragrant, and continue in bloom till they die off. What is the connection between another old favourite—the *Lunaria*—and "honesty" is not obvious. The Latin name would associate it with the moon, but our forefathers believed that the plant had an influence potent enough to produce honesty amongst the people in whose gardens it grew. The Arabis, or Rock Cress, we cultivate for show merely, though plants of this genus were once supposed to have special qualities, as, for instance, to cure heart complaints, or strengthen that organ.

"Ever charming," is the characteristic of the *Cineraria*, which is indeed a flower generally liked, though it has the disadvantage of tenderness, and that of liability to insect enemies. Gerard and Parkinson made a prize of *C. maritima* with its beautiful foliage, attaining the height of 3 or 4 feet, and which they probably obtained from South Europe; it appears to have almost gone out of cultivation. The Cyclamen tells us of "diffidence," for the flower stalks bow themselves as if in humility, and as the seeds ripen the plant does not discharge them after the manner of some species,

but the heads bend lower yet till they reach the soil. Not many flowers of spring can compare with the Camellia, and the white variety has the honour of being an example of "perfect loveliness." In the red variety we behold "unpretending excellence;" both hues unite in the hardy C. Pompona, the petals being white touched with red. This received its name from a fancied resemblance to the French head-dress called a pompon. Then we have C. variegata, where a dark red has white blotches. That old border perennial, oddly called the Spiderwort, also Tradescantia, from the worthy gardener of Stuart Lambeth, tells of "transient happiness," for the flowers are said to fade generally on the day they open. Old authors remark that the Hepaticas, when they open, are meant to give us "confidence" that the earth is now quite ready to receive seeds.—J. R. S. C.

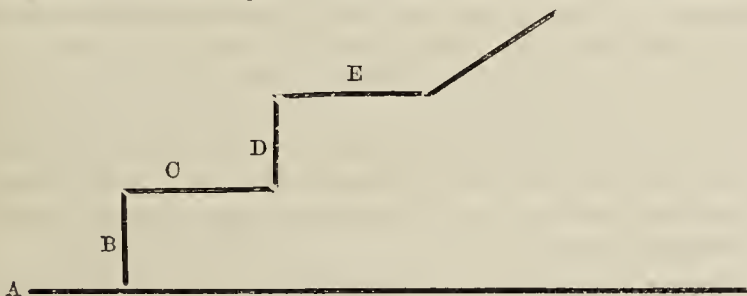
ALPINE FLOWERS.

MAKING AND PLANTING ROCKERIES.

(Continued from page 225.)

FOR small rockeries the best plan is to construct them in the form of a series of terraces. It is difficult to explain this simple matter without the aid of diagrams, but I shall try to do so as well as possible. At the base of the mound of earth which is to form the foundation of the rockery a row of stones is placed, and the soil then filled up behind, so that the surface of the terrace thus formed is level. These stones, and, indeed, if possible, all those on the rockery, should be well embedded, so that a foot can be placed on them. The edges of the stones should be closely placed together, and the soil firmly packed in. The soil must not be too wet, as it is desirable that it should not be too stiff. Some persons fill up the crevices with cement or lime mortar, but it will be found that this is not beneficial to the plants, which seem to be the better of the drainage afforded by the joints, and when the rockery requires to be rebuilt the cement or mortar renders this difficult to do.

The next step is to lay the stones for the next "terrace," and this should be done in a similar manner to that adopted for the first row. The distance between the two rows of stones is one that depends on the kind of plants it is intended to place on the terrace, and also on various other considerations which will occur to the reader, such as the height of the rockery. When the second row of stones has been laid, the rockery in course of formation will give a section something like this—



A, ground level; B, stones placed to form first terrace; C, flat portion of terrace; D, second row of stones; E, flat portion of second terrace; F, remainder of soil not yet formed into terraces. It will be found better to give the stones a slight incline inwards at the top. This will make them much firmer.

Where a large number of plants are grown in a small space it will be found useful to make separate divisions for nearly every plant. This may be done by placing stones across the flat portions—e.g., from B to D, sinking these a few inches into the soil. By means of these a series of pockets will be formed, and in each soil suited to the respective plants can be placed. Where possible these transverse stones ought to be inserted in such a way that the end next the upper terrace should abut against the point of junction of two stones, so as to keep them in position. Even in rockwork not divided into these "pockets" the insertion of such transverse stones adds greatly to the strength and security of the rockery. The building of the rockery may be carried on in the same manner until the necessary height is attained.

For many gardens, what may be called a rock bed will be found a convenient means of growing alpine without the trouble and expense of erecting a rockery. Like other rockwork it is better to have this bed of an irregular form, and it will be found to give less trouble to keep in order if it is not laid on grass, but in some position where the roots of the grass and similar plants will not encroach. This, indeed, should be the case with all rockwork; but where good reasons exist for placing it on grass a space must be kept clear, or great annoyance and labour will be required to keep the alpine from being overgrown. The rock bed should be elevated

from 9 to 12 inches above the ordinary level at the outer edge, and ought to have a slight elevation in the centre. Where the soil is comparatively heavy the edge of the bed may be a little higher. The edging of the rock bed is composed of stones laid closely together and embedded a few inches below the surface. Disposed irregularly throughout the bed a number of good sized stones or small boulders ought to be placed with their bases inserted a few inches deep in the soil.

Both rockeries and rock beds should be in a sunny position, and away from the drip of trees; unless intended for shade-loving Ferns or the comparatively few alpine which will thrive under the shade of the trees. The shade or partial shade required for some plants can be secured by planting them in nooks provided for the purpose on rockeries or behind boulders in the rock beds.—S. ARNOTT.

(To be concluded.)

CYCLAMENS.

ONE of the best and most useful plants that can be grown for various decorative purposes during the winter is the Cyclamen. A house full of them in flower, ranging from the purest white to the darkest crimson or purple, with almost every intermediate shade of colour, is a strikingly effective sight. They display a beauty when grouped together in quantity that few, if any other class of plants, are capable of producing.

Cyclamens require fifteen or sixteen months of steady growth to develop into large plants in 7-inch pots. In twelve months some excellent and useful plants can be produced, and where a start is needed seeds may be sown in May or in September in shallow pans, boxes, or pots; the soil, to be composed of loam and leaf mould in equal proportions, with a liberal addition of sand, should be passed through a half-inch sieve, while that used for covering the seeds should be still finer. Before sowing the surface should be made even, so that the seeds can be covered an equal depth. With the soil uniformly moist, under a sheet of glass, germination will soon follow in a temperature of 60°.

When the seedlings have produced their first leaf they should be placed on a shelf not far from the glass, where they will grow slowly, but sturdily. No attempt should be made to hurry them; this means ruin. When large enough they may be carefully transplanted into other pans, about three-quarters of an inch apart, in similar compost, and returned to the shelf. In this position the young plants should be allowed to grow until they have made three or four leaves, then be lifted and placed in small 60-sized pots. When established in these they should be at once gradually inured by the admission of air to a temperature 5° lower. From small 60's the plants can be shifted into larger 60's, and from these into 5-inch, and all the strongest afterwards in 7-inch pots, a size large enough in which to grow plants fully a foot through their foliage. Dwarf sturdy growth must be aimed at, and this is accomplished by a free, yet judicious, admission of air.

In no stage of growth should the soil be allowed to become dry, or the plants will soon be seriously checked. Once the plants are brought to a standstill they cannot be induced to start again very freely into growth. The plants should stand on ashes or other moisture-holding material, and the house during bright weather must be freely damped. Cyclamens delight in being syringed, and this should be practised at least twice a day when the sun begins to gain power in the spring. Whenever the plants display signs of distress during hot weather a slight syringing proves of the greatest of assistance to them. We have found that perfectly clear soot water given occasionally soon imparts a darkness to the foliage which displays the beautiful markings of the leaves to greater advantage.

The soil throughout should consist of loam, leaf mould, sand, and one-seventh of decayed manure passed through a fine sieve. Loam and leaf mould being used at first in equal proportions, the former may be increased each time the plants are potted until it comprises about two-thirds to the one-third of leaf mould. If cow manure can be had for mixing in the compost it is preferable; if not, any well-decayed manure, free from worms, will do.

If aphides attack the plants, which they rarely do if kept growing without a check, they should be fumigated at once with tobacco smoke, as these pests soon disfigure the plants. Once a proper system of growing these plants annually from seeds is practised old plants will not be retained after they have done flowering or seed-bearing. But until a stock has been obtained these may be kept, and if stood outside after flowering for a time, and supplied with water, and then repotted and started into growth in frames, they will yield a good supply of flowers for cutting.—WM. BARDNEY.



EVENTS OF THE WEEK.—Again, as in the past week, there are three items of interest to horticulturists during this week. On Friday evening a presentation will be made to Mr. W. G. Head of the Crystal Palace; on Tuesday the Committees of the Royal Horticultural Society meet at the Drill Hall; and the Brighton and Sussex Horticultural Society holds its spring show in the Pavilion and Corn Exchange of that town.

WEATHER IN LONDON.—During the past week the weather in and around London has been most pleasant and spring-like. The sun has shone gloriously on most of the days, and vegetation has made rapid strides since a few days ago. Most of the mornings have been somewhat foggy, but this has soon been dissipated. Tuesday was dull and cooler, a little rain falling in the evening, while at the time of going to press on Wednesday the conditions are the same as those of the previous day.

WEATHER IN THE NORTH.—During the week ending the 19th inst. the weather has been generally dull with occasional showers and gleams of sunshine. Saturday and Sunday, however, were fine throughout. Rain and sunshine alternated on Monday, and Tuesday morning was dull and cold. West wind has prevailed, and the thaw now complete has enabled farmers to be at the plough for several days. Crocuses are making their appearance.—B. D., *S. Perthshire*.

At the next meeting of the Royal Horticultural Society, which will be held in the Drill Hall, James Street, Victoria Street, Westminster, on Tuesday, March 26th, Mr. T. H. Crasp will read a paper on "Lifting Large Trees and Shrubs" at 3 P.M. The vacancy caused on the Fruit Committee by the lamented death of Mr. Geo. Taber has been filled by Mr. Iggulden's appointment by the Council. The Vegetable Show has now been definitely fixed for September 10th (instead of October 15th), and will be held at Chiswick Gardens, instead of in the Drill Hall as stated in the Society's "Arrangements" for the year.

GOOSEBERRY TREES AND RED SPIDER.—I have read the note by "W. D." (page 228) with much interest, and venture to endorse the valuable advice as to training Gooseberries on the wire trellis plan as practised by Mr. Beddard at Lord Leigh's gardens at Stoneleigh Abbey. At every centre in Warwickshire where I have given lectures on horticulture I have referred to this excellent plan as carried out by Mr. Beddard. Perhaps the worst attack of red spider I ever remember seeing was on the Gooseberry trees trained on the walls at Stoneleigh Abbey Gardens, referred to by "W. D." My opinion was that the walls sheltered the spiders, and the heat of the sun exactly suited their nature. At the present time thousands, even millions, are feeding on the tips of the unopened buds. Now is the time to check the attack while they are at the mercy of insecticides before the foliage shelters them, and before any damage is done. I can confidently recommend Kill-m-right, advertised in your pages for this and other pests, as I have given it several exhaustive trials.—J. HAM.

MR. MARTIN HOPE SUTTON.—To very few is it permitted, after an active and successful business career, and a life spent in works of usefulness, social, philanthropic and religious, to enter the threshold of fourscore years. An honoured resident of Reading—Mr. M. H. Sutton—has lived to attain his eightieth birthday, the 14th of March, and the pleasurable occasion was on that day duly observed. Mr. Sutton received over 100 letters and telegrams, besides a great number of congratulatory visits from friends in Reading. Addresses were also presented, amongst others, by the Church of England Y.M.C.A.; the Reading and District Gardeners' Mutual Improvement Association, and by the chiefs of departments of the Royal Seed Establishment, from which business he retired in 1888, after being head partner for more than fifty years, leaving it in the hands of the present firm, consisting of his eldest son, Mr. Martin J. Sutton, who has been managing partner for the past twenty-four years, with two other sons, Mr. A. W. Sutton and Mr. Leonard Sutton, and his nephew, Mr. Herbert Sutton. The heartfelt congratulations which Mr. Sutton received on the anniversary will be echoed far and wide, together with the wish that his life may still longer be spared to his family and friends.

PRESENTATION TO MR. W. G. HEAD.—The presentation to Mr. W. G. Head will take place in the Refreshment Department, Victoria Station, S.W., on Friday, the 22nd inst., at half-past six o'clock sharp, on which occasion Mr. Head will be invited to dinner. William Marshall, Esq., in the chair.

DEATH OF MR. ALEXANDER ANDERSON.—We regret to learn that this able horticulturist died on the 9th inst., at the early age of thirty years, from an attack of pneumonia. For about ten years he had been employed at the Royal Botanic Gardens, Edinburgh, and for the last few years as herbaceous foreman. He was an enthusiast in his department, and enjoyed the respect of his fellow employes at that establishment; his death will be deeply regretted by all with whom he came in contact.

NEW SHOW HOUSE AT SOUTHWARK PARK.—We learn that the County Council has erected a large T-shaped house at this park to be used as a show house for the Chrysanthemums. It is at present open as a winter garden, staging having been erected all round, which is filled with fine-foliaged and flowering plants, such as *Spiræas*, *Dielytra spectabilis*, *Primulas*, some fine *Imantophyllums*, *Hyacinths*, *Tulips*, and other bulbous plants in full bloom. One length of the stage is set apart for a choice collection of succulent plants. The centres of the different sections are filled with a collection of foliage plants which make a splendid display, and appear to take the public attention as a new feature even better than the Chrysanthemum show.

THE HORTICULTURAL CLUB.—The usual monthly dinner and conversazione of the Horticultural Club took place on Tuesday, the 12th inst., at their Rooms, Hotel Windsor, Victoria Street. There was a good attendance of members. The chair was occupied by Mr. C. E. Shea, and there were present the Rev. W. Wilks, Messrs. Cockett, H. J. Pearson, Selge Leonard, C. E. Pearson, H. Briscoe-Ironside, J. Walker, Harry Turner, J. Laing, and others. The discussion was opened by Mr. H. Briscoe-Ironside with an interesting paper on "The Vegetation of the Italian Lakes, Especially that of Lago Maggiore." In the conversation which followed most of the members present joined, and a cordial vote of thanks was accorded to Mr. Briscoe-Ironside, whose paper will be found printed in full on page 255.

THINNING YOUNG CROPS.—Few practices are more profitable in the amateur's vegetable garden than thinning out garden crops as soon as the young plants are above the surface. If the knowledge of the proper sowing of seeds was more widely prevalent, when the number of seeds required to make plants only need be sown, no thinning would be needed; but so many persons sow the seeds, fearing that numbers will fail to grow, and therefore many more seeds are used than is necessary. But sometimes all these superfluous seeds grow, in which case it is desirable that they should be thinned. Not only do the vegetable plants grow larger under these circumstances, but in many cases they come earlier into use.

ROYAL GARDENERS' ORPHAN FUND.—Mr. H. J. Veitch, who will preside at the anniversary dinner of the Royal Gardeners' Orphan Fund at the Hotel Metropole, on Friday, April 5th, has issued the following appeal:—"Having consented to occupy the chair on April 5th next at the anniversary dinner of the Royal Gardeners' Orphan Fund, I am naturally most anxious that it should be a great financial success, and I confidently appeal to all lovers of gardens and gardening to assist me to the utmost of their power to attain this object. From a personal knowledge of the management of the funds of the charity I can confidently speak of the excellent work it is doing. With the exception of about £50 per annum for office expenses the whole of the work of distributing the income is carried on free of cost by the Committee, and therefore almost the entirety of the income is available for the maintenance and education of the orphan children of gardeners until they attain the age of fourteen, at which age it is expected they can begin to earn. At present sixty-four children are assisted by an allowance of 5s. per week, the good done being limited only by the amount of means at the disposal of the Committee; and when I mention the fact that not half the candidates at the last election could be assisted, solely in consequence of insufficiency of funds, I feel sure I shall not now appeal in vain for help to try and permanently increase the income of the charity. It is, I venture to assert, impossible to imagine any position more sad or heartrending than that of a widow left with, in many instances, several young children and with little or no means for their support, the father having been taken off prematurely and before he could make any or only a totally inadequate provision for them. It is such cases which I now ask all who love their garden to assist." We trust the responses to this appeal will be many and substantial.

— MR. ALFRED OUTRAM, who is so well known in connection with the Royal Horticultural Society and gardening generally, has, we believe, been engaged by Messrs. Sutton & Sons as traveller.

— THE CHESHUNT, WORMLEY AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.—A meeting was held in Wormley Schoolroom on March 14th at 8 P.M., when a paper was read on "Nitrogen, Natural and Artificial Sources of, the Formation of the Different Compounds in the Soil, its Uses in the Plant Nutrition, and its Value as a Fertiliser." The paper was read by Mr. J. Grey, and a discussion followed, in which many of those present took part.

— SHIRLEY AND DISTRICT GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT ASSOCIATION.—The first annual general meeting of the above Society was held at the Parish Room, Shirley, Southampton, on the 18th inst., the President, Mr. F. G. Spranger, presiding over a fair attendance. The balance-sheet showed an income of £21 7s. 9d., and expenditure £20 6s. 5d. Commencing with thirty members the Association now numbered 111, which was considered very satisfactory progress. Sixteen meetings were held during the past year, and the average attendance was forty-six. The election of the officers and Committee and some alterations of the rules concluded the meeting.

— TEA CULTURE IN THE CAUCASUS.—We learn that the Administration of Imperial Appanages having decided to make experiments in Tea planting in the province of Batoum, in the Caucasus, where the climatic conditions are similar to those of the districts of China and Japan where Tea is grown, will dispatch a committee of agriculturists to Northern India, Ceylon, China, and Japan, in order to study the industry, and to bring back Tea plants and Chinese planters in order to make the attempt. The Administration has also resolved to send Mons. Krasnoff, Professor of Geography at the University of Charkoff, to South America and Mexico, in order to make inquiries as to certain other tropical plants, the cultivation of which would, it is believed, be also practicable in the Caucasus.

— WALLFLOWERS.—I do not quite understand "H. D." (page 225) in his reference to Belvoir Castle and Harbinger Wallflowers, as not being dwarf. The true Belvoir Yellow is the dwarfiest stock of Wallflower in cultivation. I grew it largely for many years, the average height of the plants being 8 inches, and a little higher when in bloom. I do not know of anything dwarfer. Perhaps he has for Belvoir Castle that tall loose form which came from Germany, and was sent out as Golden Gem—a beautiful yellow variety for cutting, but not at all dwarf. Then Harbinger, that is the original stock, was a dwarf compact habited selection of the London Market Blood Red. This latter is no doubt the finest dark crimson Wallflower we have. Strong plants reach to a height of 16 inches in a year, but the average height of moderately grown plants would be about 14 inches. The true Harbinger was about 10 inches. Probably any stock of the Market Blood Red is now sold as Harbinger. Selecting and keeping Wallflower stocks true is a work of immense difficulty. One stock should be a very long way from another, as the rich perfume and striking colour attracts insects, even if the air does not cause an interchange of pollen. Everything in the way of selection is practically settled for this year, and many working hard in that direction will have to start afresh.—D.

— SPURIOUS MUSTARD AND CRESS.—A few weeks ago lovers of Watercress, that best of all natural salads, were scared out of their seven senses by being informed that the herb conveyed into the human interior germs of a positively diabolical sort. So great was the popular fright that many suburban Watercress vendors retired from business, while the owners of beds who had for years made good incomes out of the herb gave up its cultivation. It is now the turn of Mustard and Cress, another charming salad, to be aspersed. In this instance it is the Mustard to which exception is taken by scientific authority. Not that it is yet indicted as a disseminator of microbes; that charge will come, no doubt, later on. The assertion is that the herb now sold by many greengrocers in combination with garden Cress is the product of Rape seed, not of Mustard seed. It can be differentiated from the latter by comparison of the leaves, the Rape being of a darker and duller green, with a downy surface. There is none of the fresh pungency of flavour which characterises the genuine article, while instead of being wholesome Rape is said to be harmful if consumed in large quantities. The reason for substituting it for Mustard is the greater quickness of growth. Rape seed strewn on wet flannel and kept in a warm atmosphere will be ready to cut in a week, whereas the more slowly growing Mustard requires twice that time for maturity. It seems singular that for such

a trivial gain as this the trade should dishonestly palm off an inferior article for a superior. But competition is especially severe we believe in greengrocery, and even the smallest profits have to be diligently sought for.—("Globe.")

— MARIE LOUISE VIOLETS.—Mr. J. Anderson sends us blooms of this Violet taken from plants grown in cold frames. They are large, rich in colour, and deliciously fragrant, and are highly creditable to their grower.

— FINE CYCLAMENS.—Mr. W. Rapley, Harrow Weald House, Stanmore, writes:—"I have enclosed a few blooms of Cyclamens, of which I think the colours very good. All are seedlings of Sutton's mixed strain. The seeds were sown in November, 1893, and the plants were at their best at the beginning of February, and averaged fifty blooms on a plant. I have quite decided not to grow the plants on the second time again if I have the convenience to grow seedlings. I have at the present time about 150 seedlings in thumb pots, and as these are all whites I hope to have a show of white bloom at the beginning of next year." [We must congratulate our correspondent on the excellence of the flowers he has sent us. The diversity of colouration is very rich, and the flowers and foliage are of splendid substance. It is evidently a grand strain of seeds, and the plants to produce such handsome blooms must have been grown in the best possible manner.]

— THE RED CEDAR.—Red Cedar (*Juniperus virginiana*) is the wood of blacklead pencils; and practically the wood in all these indispensable articles, at least in pencils of good quality, is the wood of this tree from Florida, where there are great factories belonging to German manufacturers, devoted to cutting up Cedar wood into pencil stock. Every artist in all the civilised world, every man of letters, every school teacher, all the bankers, lawyers, and other men of affairs, the men and women who control the world, and all the school children who are going to control it, hold every day in their hands a piece of this wood. It would be interesting to know, says a transatlantic contemporary, what proportion of these men and women, the most intelligent and best educated of the human race, knows anything of the origin of these little cylinders of wood, of the character and appearance, and of the name even of the tree that builds them up in its long life of slow accretions.

— BIRMINGHAM AND DISTRICT AMATEUR GARDENERS' ASSOCIATION.—Mr. Wm. Dean gave a most instructive and interesting paper before the members of the Birmingham Amateur Gardeners Association on Wednesday, 13th inst., on "Gardening Mistakes: How to Avoid Them." He dealt with the subject in three sections—flower garden, fruit and vegetable garden, and greenhouse. He said that overcrowding was far too common amongst amateurs, and was responsible for a good many failures. He advocated the addition of fresh soil to the garden every year, and said cleanliness and order should be the rule here, as well as in the greenhouse. Ventilation in the greenhouse should be given freely and early during the warm weather, and watering should be done very carefully. A vote of thanks was passed to Mr. Dean on the motion of Mr. Roe. Acting on a suggestion made in the course of the discussion, it was decided to invite all the members of the Association to assist in compiling a list of hardy shrubs and perennial plants growing in gardens in the district which had perished and survived the exceptional frost, it being thought that such a list would prove a valuable record for those members about to plant shrubs and the like.—WM. B. GRIFFIN, *Hon. Secretary, Alcester Road, Moseley.*

— THE "BOTANICAL MAGAZINE" of March contains the following subjects:—*Heptapleurum venulosum* (Araliaceæ).—This genus is a native to British India and South-eastern Asia. The specimen represented flowered at Kew last year. It is sub-arborescent, and has the branches dotted with white. The polygamous flowers, which are red and small, stand in clusters upon short pedicels and solid peduncles, the whole forming a compact branching panicle, having a decidedly reddish hue. *Disa sagittalis* (Orchideæ).—Eastern South Africa is the home of this genus. The tuber is spindle-shaped and the stem clothed with dark brown membraneous sheaths. The flowers, which are not an inch in length, have a generally white aspect, touched with pale lilac and red. *Veronica loganioides* (Scrophulariaceæ).—This plant comes from the Southern Island of New Zealand, where it is very rare. It differs from any known *Veronica*, and has been designated *Veronica epacrida*. It is a dwarf shrub. The stems are marked below with the circular scars of the fallen leaves, but are red, leafy, and branched above. The white flowers stand upon hairy peduncles with pink anthers

within them. *Weldenia candida* (Commelinaceæ).—This is a plant ranging from 1 to 8 inches in height, with tuberous roots and spreading, recurved leaves, passing into tubular sheaths below, and having scattered tufts of white hairs. The flowers are sessile, set in terminal tufts among the leaves. The tubular calyx, of about an inch in length, is of pale green colour, and the corolla is pure white, projecting to about twice the length of the calyx. It is a native of Mexico. *Schinus dependens* (Anarcardiaceæ).—This shrub, which comes from Chili, rises to about 15 feet. The dark brown branches are rigid and spiny at the points. The flowers are arranged in thick yellow clusters or axillary racemes, and consist of male and female. It is a hardy plant, and flowers in May.

— KEW GARDENS.—Her Majesty the Queen has been graciously pleased to allow the fences excluding the public from the Palace Meadows to be removed. This piece of ground is about $4\frac{1}{2}$ acres in extent, and when thrown open it will allow visitors a direct, instead of a circuitous, access to the finest part of the arboretum. The Royal Gardens are 251 acres in extent. It is not generally understood that they were originally the private property of the Crown, and not acquired out of public funds. The building used for the herbarium and library was sold to the nation by George IV. Access to the remainder has been step by step conceded to the public by the liberality and munificence of Her Majesty the Queen. The successive stages may be briefly enumerated:—The Botanic Garden, of which Sir William Hooker was appointed Director in 1841, comprised about 11 acres. To this was almost immediately (1842) added between 3 and 4 acres about No. I. House, and the orangery (now No. III. Museum). Soon after (1844), by permission of the Queen, 47 acres, including the piece of water in front of the Palm house, were added from the pleasure grounds for the formation of a pinetum. In 1846 the Royal kitchen gardens (14 acres) were abolished; a third of their area (about 5 acres), called Methold's Garden (it having originally belonged to Methold House, the Director's present official residence), was at once added to the Botanic Garden; another third abutting on the Richmond Road is now represented by the herbaceous ground and the propagating yard for the purpose of which many of the then existing fruit houses are still in use. In 1851, the intervening third, the kitchen garden and paddock, in the occupation of the King of Hanover, reverted to the Crown, and was added by the Queen to the Botanic Garden. The pleasure grounds and gardens at Kew were in the occupation of the King of Hanover for sporting purposes at the time the Botanic Garden was given to the nation. The woods were filled with rough scrub for cover. July 9th, 1845, they were placed in the charge of Sir William Hooker by the Woods and Forests. The intention was that they should be formed into a national arboretum. A plan for the purpose was prepared (1846) by W. A. Nesfield. The main features were carried out at the time, and the general principle has been worked upon ever since. March 30th, 1864, the arboretum was finally thrown open to the public every day of the year, except Christmas Day. — ("Kew Bulletin.")

— EDIBLE FUNGI IN SURREY.—Mr. Charles A. Briggs has an interesting article in the January number of "Science Gossip," on the "Edible Fungi of Surrey." Mr. Briggs is struck by the popular ignorance as to the existence of edible fungi—other than Mushrooms—and suggests that instruction in the difference between edible and poisonous fungi and other plants should be given in village schools. "There must," he says, "in every district be someone—clergyman, doctor, or teacher—with sufficient botanical knowledge to enable them to point out the distinctive characters of, at all events, the larger edible species, and the knowledge thus imparted would spread and spread until this blot on our national thrift was removed." With a view of rousing the class with whom it is a matter of prejudice rather than ignorance, Mr. Briggs gives a few notes of species eaten and enjoyed, not by himself alone, but by his whole household during the past year. Mr. Briggs records no less than fourteen species, of which the common Mushroom (*Agaricus campestris*), the Horse Mushroom (*A. arvensis*), the white St. George's Mushroom (*A. gambosus*), the Warty Cap (*A. rubescens*), the *A. vaginatus*, the *A. prunulus* var. *orcella*, the Blewit (*A. personatus*), the Blue Cap (*A. nudus*), and the *Boletus lutens* "may be cooked either in the frying pan, or baked in one of the common enamelled iron dishes now so much used, another dish being inverted over it all the time of cooking, and not lifted or removed until the dish is placed on the table, so as to retain all the flavour and aroma." Besides these Mr. Briggs utilised two of our common Puff-balls (*Lycoperdon plumbeum* and *L. bovista*), which, if "gathered young and eaten very fresh, are delicious when cut in slices, dipped in egg and crumbs, and fried; the *Morchella esculenta*, which

is "most delicious when stewed in a good gravy;" the *Sparassis crispa*, the most gigantic of English fungi, which frequently makes a growth as large as a man's head; and the beefsteak fungus (*Fistulina hepatica*), the flavour of which, however, Mr. Briggs does not much like. The species named are all large and easily recognisable, but there are also many small kinds equally if not more palatable. Mr. Briggs has done good service in calling attention to these neglected foods.

— CASTLETON GARDENS, JAMAICA.—The "Bulletin" of the Botanical Department, Jamaica, for October–December, 1894, contains very interesting notes on the plants cultivated in the Botanic Gardens at Castleton. This serves both as a guide to the gardens and affords useful information on the plants themselves. A plan is added, showing where the plants may be found. These gardens were established about thirty years ago in a picturesque valley in the mountains between Kingston and Annotto Bay. The chief feature of the garden is undoubtedly its fine collection of Palms. These thrive exceedingly well in the moist part of the locality. There are the Sugar Palm (*Arenga saccharifera*), Tucum Palm (*Astrocaryum vulgare*), Cohune Palm (*Attalea Cohune*), Jamaica Ippi-appi (*Carludovica gracilis*), Wax Palm (*Copernicia cerifera*), Æta Palm (*Mauritia flexuosa*), Ivory Palm (*Phytelephas microcarpa*), Jupati Palm (*Raphia tædiger*). Of flowering plants *Amherstia nobilis* has long been established; *Beaumontia grandiflora* forms large festoons across the garden paths, while others, such as *Bignonia magnifica*, species of *Bauhinia*, *Colvillea racemosa*, *Dillenia indica*, *Mesua ferrea*, *Michelia Champaca*, *Napoleona imperialis*, *Spathodea campanulata*, *Victoria regia*, are very luxuriant and attractive. The Mangosteen (*Garcinia Mangostana*) fruited for the first time in Jamaica at Castleton in 1886. With Economic plants the Castleton Gardens are well supplied. They serve as an excellent centre for the propagation and distribution of such plants on the north side of the island, and large quantities are also sent to the Hope Gardens and to Kingston. The three best known Rubber Trees—viz., Para Rubber (*Hevea brasiliensis*), Central American Rubber (*Castilloa elastica*), and Ceara Rubber (*Manihot Glaziovii*) have been established for more than twelve years, and have borne crops of seeds. A very successful plot of Liberian Coffee has been a prominent feature since 1880, and large quantities of seeds are annually distributed in the island. Mr. Fawcett anticipates that the export of coffee from Jamaica ought soon to be doubled. — ("Kew Bulletin.")

— THE INFLUENCE OF TEMPERATURE ON TERRESTRIAL PLANTS.—In an address to the United States National Geographic Society Dr. C. Hart Merriam discusses the influence of temperature on the geographical distribution of terrestrial animals and plants. It is well known that in the northern hemisphere animals and plants are distributed in circumpolar belts or zones, the boundaries of which follow lines of equal temperature; but difference of opinion prevails as to the period during which temperature exerts its restraining influence. Dr. Merriam opens new ground in the address to which we refer. Physiological botanists have long maintained that the various events in the life of plants, such as leafing, flowering, take place when the plants have been exposed to definite quantities of heat, which are the sums total of the daily temperatures above a minimum (6° C.) assumed to be necessary for functional activity, and are termed the *physiological constants* of the particular stages. Dr. Merriam infers from this that there must also be a physiological constant for the species itself; and this *species constant* must be the total quantity of heat required by a given species to complete its cycle of development and reproduction. It follows that not only the mean temperature, but also the total quantity of heat in particular zones must be considered in estimating the influence of temperature on the distribution of plants and animals. Dr. Merriam has constructed a pair of isothermal charts of the United States, of which one shows the distribution of the total quantity of heat during the season of growth and reproduction (*i.e.* the sum of daily mean temperatures above 6° C.), and the other the mean temperatures during the six hottest weeks of the year. By comparing these with a biogeographical chart of the same region, Dr. Merriam concludes, from the striking coincidences which occur, that animals and plants are restricted in northward distribution by the total quantity of heat during the season of growth and reproduction, and in southward distribution by the mean temperature of a brief period during the hottest part of the year. The anomalous intermingling of boreal and austral types which occurs over an extensive area of the Pacific coast of the United States becomes explicable by the establishment of these principles, for here alone is a low summer temperature combined with a high sum total of heat—the two conditions which permit extensive mixture in the same region of northern and southern types. — ("Nature.")

— NATAL PINE APPLES.—A small consignment of Pine Apples arrived from Natal a few days since, and the fruits were offered at Covent Garden. Their condition left nothing to be desired, except that, having been gathered before they were ripe, and being brought over in cold-air chambers, many of them had a green and discoloured appearance. Consequently this experimental shipment did not prove altogether a pecuniary success, only 1s. 3d. to 2s. each being realised.

THE LATE MR. JOSEPH LAKIN.

BY the death of Mr. Lakin on March 4th at the age of sixty-seven years, the little world of floriculture "of the old school," as it is now the fashion to call it, is distinctly the poorer, and his departure from our midst merits a further notice than that contained in the brief paragraph in the issue of the *Journal of Horticulture* for March 7th.

Mr. Lakin from youth was an ardent admirer of all florist flowers, and although for many years prevented by the sterner duties of life from cultivating them to the extent of his desire, yet he never lost his early affection for them. When he was able to retire from the Oxford County Police, in which force he held at the time the position of Superintendent of the Chipping Norton division, his one idea was to devote himself to the cultivation of his favourite flowers.

At the peaceful village of Temple Cowley, near Oxford, he found a congenial home, and soon made the half acre of ground behind his house one of the most interesting gardens in the country. Carnations, Picotees, Auriculas, Tulips, and Pinks were his prime favourites, but room was found for many other garden flowers. He was an enthusiastic and successful raiser of Carnation and Picotee seedlings, and many good new varieties have resulted from his labours. Amongst them may be mentioned:—

Carnations.—Rose flakes: Mrs. May, Lovely Mary, and Erskine Wemyss. Pink and purple bizarre: Miss Annie. Selfs: Annie Lakin and Emma Lakin. Fancies: Cowley Rose, Atalanta and Grandis.

Picotees.—Heavy reds: Isabel Lakin, Ne Plus Ultra, and Mrs. Keen. Light purples: Elizabeth and Sarah Ann.

In Pinks he raised Mrs. Lakin, white self; in my opinion the best variety we possess.

For the Tulip Mr. Lakin had much love, bound up as it was with the associations of his youth, at which time he was on intimate terms with the best Midland growers and raisers, and many a racy old story was he able to relate of these worthies and their doings.

Mr. Lakin loved his flowers, and like a true florist tended them with his own hands as long as he was able. None knew better than he their individual requirements; none appreciated more clearly their capacity for improvement, and the lines on which the improvement ought to proceed. This was the steady light of the true florist, and he had no sympathy with those modern "will o' the wisps" who are doing their best to lead us into floral quagmires. If he had been spared in health and strength he would doubtless have gone on adding to the number of the beautiful varieties which already bear his name.

Humanly speaking it is matter for deep regret to his friends that further length of days was not given to him. Genial and good hearted, Joseph Lakin's memory will remain green in the affections of his friends until they, in their turn, pass away and themselves become memories only.—JAMES W. BENTLEY.

EXAMINATIONS IN HORTICULTURE.

ON page 234, "A Young Gardener" called my attention to the fact that I did not mention in my reply to his (on page 214) how many of the forty-nine successful candidates (whose ages were under twenty-five) obtained a first-class certificate.

It seems as if "A Young Gardener" thought in the first place that few under the age of twenty-five gained the Society's certificate. When he was shown that more passed under that age than above it, he tries to pass it off by asking the above question, but he will find nothing in this to support him, but just the reverse.

Last year ten candidates gained sufficient marks to be placed in the first class; five of these ten were persons under twenty-five years of age, and only one of the remaining five was a gardener. Does this show that the successful candidates were those whom "A Young Gardener" calls our "chiefs?"

We may go even farther and see who are those which are placed in the second class. Taking the first fifteen for convenience, I find that out of that number twelve are under the above mentioned age (viz., twenty-five).

The examination is as perfect as the Society can make it, and I think it would be very unfair to make any distinction in the ages of the candidates, for there are many gardeners above the age of twenty-five who do not know so much as younger men.

I have generally found that anything which seems hard to do, is so because we know very little about it, and I would suggest that "A Young Gardener" should make up his mind to try for a first-class certificate, and then perhaps he will not find it so hard to secure as he thought it would be.

I may say that the lack of candidates for this examination is probably due to the fact that men know but very little about it. As an example, only two sat at the examination which was held in this district last year; this year I know of thirteen who have given in their

names, and probably some of the Society's certificates may come this way, although we are only "Young Gardeners."—W. D., Turnford.

[Young gardeners might take courage from the fact that the medallist last year was an amateur, and the student, only four marks behind him, a schoolmaster.]

I GATHER from what has been published in the *Journal*, and also from what I have heard in other directions, there is an impression abroad that these examinations are of a competitive nature. That is a mistake in a certain sense, for they differ appreciably from Civil Service examinations, that are really competitive, as all the candidates in these are of about the same age, and start from very similar bases.

In the R.H.S. examinations, a well cultured youth of twenty, if he has, proportioned to his age, fair practical knowledge, may often do better than a candidate double or treble his age, because his academical education is to him so helpful in a paper examination. Of course we all have to admit that no mere literary examination can furnish a true test of any person's professional capacity, but at least it does to some extent, because it is very easy for any good examiner, if he be a practical man, to gather from paper answers how far the candidate knew thoroughly what he was writing about, or whether his knowledge was only of the perfunctory order. The practical answer usually goes direct to the subject, even though not always an ideal literary exercise, whilst the very amateurish answer dances, as it were, round the subject hesitatingly, then finally makes a dash, and sometimes misses the mark.

It is of great value that anyone purposing to sit for the R.H.S. examinations should practise the art of answering questions on paper concisely and practically. It is an accomplishment only obtained by practice. Now here is a matter in which head gardeners should be able and willing to assist their juniors efficiently. Let them set on paper every week from now till May some nine or ten questions on gardening; not long ones, but brief and practical, to which all their respective young men should be required to furnish replies. It should be made compulsory by the head gardener. Then he could examine, and point (*i.e.*, award marks of merit for) the answers weekly, and it would be a capital plan if the young men in a garden would set apart at least one evening in a week to hear and discuss each other's answers. The result could not be other than interesting and valuable. It is only by some such literary exercises and preparation that candidates can hope to cut a good figure in the examination returns. I do not approve of the creation of different grades of candidates, whether having regard to age or to occupation; but I do think that when the lists of successful candidates are published both occupations and ages should be stated, as then the youth of twenty years, if somewhat below the man of fifty, would certainly occupy a not less meritorious position. All the same, this youth's greater dexterity in composition and literary style may help him far more than he imagines.

May I tell young gardeners that very many of them have not too well mastered the elementary knowledge called spelling, although that is a defect happily becoming less yearly? Handwriting, too, may or may not be of the best. Then at all times and seasons the art of note-taking is a valuable aid. How many things seen or heard embodying most useful knowledge are soon forgotten, because Captain Cuttle's famous practice is not followed. I have frequently at lectures watched with interest the attempt of members of the class to take notes, but they often signally fail. They come armed with pencil and paper, but seem entirely at a loss to make a note of the salient points of what they hear, and before they can make up their minds how to make a note the lecturer is some way further on. Elementary teachers can do this because they are trained to such work, but the young gardener and the amateur are too often from want of experience quite at sea. Hence the great necessity for practice.

It may interest readers of the *Journal of Horticulture* to learn that in connection with the lectures on gardening being given in the county of Surrey under the Technical Education Committee, the lecturers have framed from out of each separate lecture a series of from ten to twelve questions. Copies of these questions are furnished to each person present. These questions are taken home, and those who care to do so furnish replies to as many as they can during the ensuing week, and return them to the instructor at the next lecture or send them by post. These are all subsequently pointed, and the results will be made known to the various candidates. In this way it is hoped many may be induced by a little training to sit for the R.H.S. examinations.—AN INSTRUCTOR.

AN obstacle in the way of not a few men who would like to enter themselves for the R.H.S. examinations is the formidable array of books recommended to students. Some of these books are of a voluminous character. They cannot be purchased by many young gardeners, and as these think that others, to whom £2 or £3 are of small account, will buy them and "read themselves up," several of those who cannot do so simply hold aloof. I know of six men who, through no fault of their own, thus feel themselves handicapped, and are therefore not likely to enter. It may be foolish, but it is a fact. On the other hand I know of two men who bought all the books, and one of them said they bewildered him. It is certain that neither of these students gained a certificate, so this book question has two sides; but still the recommendation of such works implies their necessity, with the results above stated.—A STUDENT.

[Another correspondent who intends trying for a certificate writes:— "Are there no means of borrowing some of the costly books recommended for the exam.? It would ruin men like myself to buy all of them."]

MODERN GRAPE GROWING.

HEATING.

I DO not know that I can suggest any better arrangement of the pipes than that in the Longleat vinery, where there are ten rows placed thus:—One nearly close to the side wall, two side by side about a yard from this, and two others 3 feet from the centre of the house forming the boundary to the path. The other side is a repetition of this arrangement, and each side in every compartment can be worked separately. It is of great importance to have good valves at suitable places both on flows and returns, not only such as will regulate or stop the circulation of heat, but that will also when necessary prevent the passage of water, for in these times we must all be economical, and when a particular vinery is not wanted during the winter for storing tender plants it will do no harm, but rather the reverse, to let the frost in till such time as the Vines require to be started. I am in the habit of doing this, and of course it is necessary to draw the water out of those pipes that are exposed.

It is advisable to so arrange the pipes that there shall be no dips. I have never yet had a case where a dip was necessary, though possibly there may be such. I have in times past arranged some compartments to be heated with flows only and others with returns only, and it is astonishing how accommodating hot water is if you arrange it without dips. By dips, of course, I mean where the pipes dip down and rise again. Let them rise a little here and there, or better still all the way, till they begin to return, and generally make the circuits as short as possible, so as to get the water back to the boiler quickly. I know of one establishment where the reverse of this prevails. In one house particularly there are eight rows of pipes altogether near the front in four pairs, one above another, and incredible as it may appear, the water actually travels the length of the house eight times before it can get back to the main. Supposing the house to be 40 feet long the water has to travel 320 feet, whereas if the pipes were properly arranged it would only travel a little over 80 feet. If my readers can believe such a thing to exist they will not be surprised to learn that all the arrangements are faulty; and although there are only about 3000 feet of pipes to be heated, nearly 1000 feet are underground, and there are three large Trentham boilers fixed to do the work. Of course, one of these boilers would be sufficient if the arrangement was right, but as it is the circulation is not to be depended on when all three are going. There should never be as many as eight pipes together, and the water should never go round the house a second time. If there are five pipes two should be flows and three returns, or *vice versa*, and the flows should be in the coldest places. When mains are outside it is important that they be kept clear of the masonry which surrounds them, otherwise much of the heat will be lost. Ours are covered with an asbestos mixture which effectually prevents any loss.

In the matter of boilers we have been unfortunate. Two were fixed side by side, and leading into one main, to which something over 3000 feet of 4-inch pipe is attached. They were welded upright boilers, having a drum outside and a circle of tubes inside, these tubes being so bent at the lower end as to form elbows, which were constantly in the fire, and this proved to be the weak point. One of them sprang a leak during what should have been a summer month, and all the tubes were found to be nearly burned through at the lower part, although they were perfectly clear of sediment. This boiler was replaced by another of the same pattern, but before the fire was lighted the second one gave way, and then it was determined to try something different.

We have tried something different, and now I believe we shall have cause to rejoice that the old ones did go the way of all boilers. What we now have may be called a tubular top-feeding saddle, with water bars. I do not know how much of its power is due to the plan of fixing, for this is something new to me. It is fixed in a slanting position, being 4 inches higher at back than at front. It is less than 4 feet in length, but it is considerably more powerful than the other two were together, and takes no more fuel than one. It is an adaptation of the boiler that won the gold medal in the contest at Liverpool in 1886. Most boilers, and probably all of them, have their faults.

The ordinary saddle boiler, if large enough to heat 1000 feet, is too slow. It may be all right if kept going constantly, but if you have to light a fire suddenly you are apt to have the frost in the house before the heat gets round. A boiler that will not alter the temperature of the flow pipe in ten minutes after lighting the fire is not good enough, neither is one that will not respond quickly to the stoker on a cold frosty morning. What gardener has not found the want of a quick boiler on a morning when frost has been extra severe, and perhaps has come on suddenly? His stoker on his first visit has found temperatures too low. He rouses up the fire, puts on full draught, and uses the poker freely; he burns an enormous quantity of fuel, most of which goes to form clinkers, yet the temperatures still go down rather than up, and he cannot get his pipes hot till just as the sun shows itself; then they get very hot, and all his efforts to check the fire seem to make them hotter still. It is well known to old practical stokers that the big roaring fire got up quickly not only wastes fuel, burns out boilers, bars, firebricks, and all the surroundings, but that most of the heat goes up the chimney, and that when the inexperienced stoker shuts nearly all the draught off a large fire, red-hot through, with the idea of checking it, he just creates the conditions most favourable to rapid heating of the water.

Perhaps a bright day follows with a cold east wind, and then we know what happens. Instead of being able to bottle up the sunshine and keep the east wind outside, some of the latter has to be admitted

and the former is rendered comparatively useless. There is often a difficulty when heat has to be turned on to extra houses during evening simply to keep out the frost. Many a time I have had to keep pipes slightly warm during a bright day to ensure their working right at night, for if you have one or more houses which require to be kept constantly hot, and you are short of boiler power or have a slow boiler, the water returning from the heated houses will make the return main pipe comparatively hot, and there will be a difficulty in getting the cold water from another house into the return at all. Where everything works easily and there is abundance of power this difficulty is not often a formidable one. To be satisfactory, we must have a boiler that will respond quickly to the stoker, that will be economical, that will heat a small or large quantity of pipes at will, that will make few ashes and no clinkers, and that will keep a tolerably even heat during the night.

I do not say the boiler we now have is perfect, but it comes nearer what a boiler should be than any I have had to do with before. The inside of the furnace is sufficiently wide to hold enough fuel for the night, even when coke is used, without placing it much more than a foot in thickness, so that the fire is never smothered. It has tubes running through the centre, splitting up the fire and entirely preventing the formation of large clinkers. There is no poker required. All that is wanted is a light iron rod turned up at the end to be used underneath the bars when the fire is required to go sharper to dislodge the dust that accumulates there. We take out all, some, or none of this dust, according to the amount of heat required. I have been looking over some of Hood's tables concerning heating, and have come to the conclusion that they are either useless or my understanding is very dull indeed. In the first place he calculates on the assumption that the pipes will be heated throughout to 200°. Now we know this never happens with the low pressure system when there is a considerable length of pipes to be heated—say over 1000 feet, and only for very short intervals in shorter lengths, when the water must be actually boiling.

I find in the Liverpool contest with 500 feet that the premier apparatus, after five hours' hard firing, did actually exceed that temperature but none of the others came anywhere near it; but in the morning after the fires had been banked up for twelve hours, the average temperature of the pipes was just 100° on the winning apparatus, 86° on the second, and 73° on the third. In the 2000 feet contest the highest temperature reached at the point where the thermometer was placed on the flow pipe was 168° after four hours' firing, and it declined to 110° after twelve hours' banking. That of the second competitor declined to 104°, and the third to 88°. True, these contests were in the open air; but they took place just after Midsummer Day, and it would be easier to heat pipes in the open air at that time than it would be to heat them in a house during sharp wintry weather.

I think, then, these figures prove that 200° is much too high a figure to calculate upon; in fact, I believe 100° is too high. Then when we come to calculate according to Hood's tables as to the quantity of pipes necessary for heating each house we find they are faulty in an opposite direction. In Mr. Barron's excellent treatise on "Vines and Vine Culture" he gives a plan of a span-roofed house, which I take to be about 40 by 20 feet. Say its average height is 6 feet, this would give 4800 cubic feet of air space to be heated. If we take the external temperature at 32°, and require a minimum of 70° in the house (the figures given by Mr. Barron), it would take 787 feet of 4-inch pipes heated to 200° according to Hood to secure that temperature, but Mr. Barron only shows eight rows, say 350 feet, and few people would think of having a greater number.

Our Muscat house is 60 by 30 by 9 feet—i.e., 16,200 cubic feet—and would require according to the same reckoning 1814 feet of 4-inch pipes to produce a temperature of 60°, but we have only 790 feet in twelve rows, besides ends, and find it ample. There is no doubt that large houses when well glazed take comparatively less piping than smaller ones. It is a good plan to have plenty of piping, but not more than enough; fifty to sixty feet of 4-inch pipes, if the glazing is fairly good, is sufficient for each 1000 cubic feet of air. We do not expect to be firing away all the time, as if competing for a gold medal. Hard firing cannot be carried on without waste of fuel and injury to the plants and apparatus. And after all, the best of apparatuses will be of little avail if we lack that *rara avis*—a good stoker.—WM. TAYLOR.

SUMMER ROOT-PRUNING.

I HAVE never seen a better example of the good effects of this practice than the following. In 1893 a merchant requested my opinion as to the cause of some of his standard Pear trees never having borne fruit. They were growing luxuriantly, and I found had since being planted been branch-pruned only. I advised him to cut a trench half round each tree at 3 feet from the stem. This was in midsummer. He put the advice into practice, and last autumn the trees for the first time were laden with fruit. The results of cutting back half the roots was not only a check to growth, but mainly it was a rapid and certain means of producing fibrous roots that immediately in turn re-acted on the rankly grown shoots, causing them to ripen and bristle with fruit buds. No doubt the same results would have followed had the operation been delayed until November, but a year would have been lost, and instead of having Pears in 1894 it would have been the present year before the benefit would have been seen.

I have a number of Apple trees to remove next autumn. One-half the roots are being cut back now, and in summer the other half will be

shortened, and by this means I hope, judging from past experience, to transplant not only with safety but with advantage.

Like Mr. Temple, I have transplanted shrubs at all seasons. Last year I had an opportunity of seeing the wonderful manner that shrubs lifted in full growth appreciate the treatment. Those in question were a group of Golden Yews, which grew so rapidly through the summer as to become quite too close by August. One damp afternoon of that month I had half the number transplanted. In November some specimens were required for a scheme of shrub planting then proceeding. The transplanted Yews were chosen, and each one lifted with a network of short white roots encircling the ball.

The only times that I have known root-pruning to fail has been when the work had been injudiciously done. I have seen both fruit

Perhaps the reason of this is because it is considered a difficult plant to cultivate. It also has the reputation of growing well for a time and then to gradually dwindle away, though the greatest care and attention may be bestowed on it.

I have only one plant. This has been under my care for about four years, being a very small piece when it came. So far it has both grown well and flowered profusely. It is now in a 4-inch pot, and has just ceased blooming, which is a little earlier than usual from the fact of it being in a cool house instead of a cold frame during the long spell of severe frost. The flower stems numbered nearly 100, some bearing two and others three flowers. It seems almost incredible that so small a plant should produce such a number of flowers. I should like to know if it generally flowers so freely.—J. S. UPEX.



FIG. 44.—EUCCHARIS STEVENSI.

trees and shrubs killed, large ones of course, through the cutting back of the whole of the roots, when no more than half ought have been manipulated at a time.—R. P. BROTHERSTON.

SOLDANELLA ALPINA.

THIS is one of our choice alpine plants, and with a few other species forms a small genus in the Natural Order Primulaceæ. Alpina is the more common one, and is a very beautiful and interesting plant. Its small leaves are round or kidney shaped, dark green, and leathery, growing in tufts upon the ground. The flower stems are about 3 inches in height, and bear two or three pale blue bell-shaped pendent flowers each, which are cut into linear segments, having the appearance of a thick fringe. Its time of flowering is March or April.

Although this plant was introduced into this country nearly two centuries and a half ago, it appears to be very seldom met with.

EUCCHARIS STEVENSI.

THIS free-flowering Eucharis (fig. 44) was staged by Mr. P. Blair, Trentham, at the meeting of the Royal Horticultural Society held at the Drill Hall on March 12th, and on that occasion gained an award of merit. The variety was raised a few years ago by Mr. W. Stevens, gardener to W. Thompson, Esq., Walton Grange, near Stone, Staffordshire, whose name is so well known as a successful cultivator of Orchids. Though several years have elapsed since the variety was raised, this was said to be its first appearance at the Drill Hall. The plant is very similar in habit to Eucharis grandiflora, but the leaves are somewhat smaller. The chief recommendations of Eucharis Stevensi are its free-growing and floriferous habit, and its entire freedom from attacks of disease, which so often play havoc with plants of the older varieties, and such being the case it should become a very useful addition to the Eucharis family.



SPECIAL PRIZES OF THE NATIONAL ROSE SOCIETY.

THE Hon. Secretaries of the National Rose Society are happy to announce the following list of special prizes which have been placed at the disposal of the Committee for the present year.

GLOUCESTER.—The High Sheriff of Gloucestershire a silver cup, value 5 guineas. In local classes Messrs. J. Jefferies & Sons, Cirencester, a silver cup; Rev. F. R. Burnside, a silver challenge cup; the Mayor and Corporation of Gloucester, a silver cup; the English Fruit and Rose Company, prizes for Moss, garden, and single Roses; besides money prizes and medals by the Rev. B. S. Dawson, Messrs. J. Jefferies and Sons, Mr. Conway Jones, Mrs. Gambier Parry, Mr. T. Thorpe, Mr. W. J. Johnstone Vaughan, Mr. T. A. Washbourne, Messrs. J. C. Wheeler and Son, Kingsholm Nursery, Gloucester; and Captain de Winton. All the other prizes in the numerous local classes are provided by the Gloucestershire Rose Society.

CRYSTAL PALACE.—Messrs. Harkness & Sons, The Grange Nurseries, Bedale, Yorks, a challenge cup value 25 guineas; the Right Hon. Lord Penzance, a silver cup value 5 guineas; Mr. Frank Cant, Braiswick Nurseries, Colchester, a special prize value £5; the Hon. Mrs. J. Townshend Boscawen, a piece of plate value 3 guineas; Mr. E. Mawley, a piece of plate value 2 guineas; besides money prizes by the Rev. W. J. Mellor, Mr. O. G. Orpen, Messrs. Paul & Son, The Old Nurseries, Cheshunt, the Rev. J. H. Pemberton, and Mr. C. E. Shea.

DERBY.—The Right Hon. Sir William Vernon Harcourt, M.P., a silver cup value £10; the Royal Crown Derby Porcelain Company (Limited), a Crown Derby vase value 5 guineas; the Mayor of Derby, a piece of plate value 3 guineas; and a money prize by Sir Thomas Roe, M.P.

NEW ROSES.

WE used to be taught in our Latin grammar that "experience teaches us," but either it is a lesson which our foreign rosarians have not yet learned, or else there is some mysterious way in which they make a profitable business out of their new seedlings of which we are ignorant. What becomes of those varieties which in such constant profusion are brought forward every year it seems difficult to ascertain. No English amateur ever dreams of buying one, and nurserymen have long since given up the unprofitable game of buying a lot of new Roses of high-sounding descriptions and propagating them freely, only to throw them away, and hence I cannot think there can be much of a market for their wares amongst us; nor do I think that America can fill up the gap caused by the greater caution of our English Rose growers, for as well as I can gather from notices which have appeared from gardening journals, the culture there of Roses is mostly under glass and is confined to a few leading varieties, and in such a system there would not be much opening for novelties; and yet, notwithstanding the very small per-centage of new Roses that remains permanently with us, "the cry is, Still they come."

I have before me now through the courtesy of Messrs. Paul & Son a catalogue of the new Roses to be sent out during the present season; it is issued by Messrs. Soupert & Notting of Luxembourg, and the list amounts to no less than eighty-one flowers! Of these more than one-half are Teas—namely, forty-three, eight Hybrid Teas, seventeen Hybrid Perpetuals, sixty-eight in all; the remaining thirteen are made up of miscellaneous Roses, such as Polyantha, China, Noisette, and Rugosa, so that again as of late years the Tea section is the predominant partner.

In looking over the list two things strike me: first, that the names of some of our most celebrated raisers are absent. Death and other causes have thinned their ranks, and in vain we look for the names of Lacharme, Margottin, Charles Verdier, Guillot, Ducher, and others to whom the Rose world owes so much, for their productions are to be found wherever the Rose is cultivated, and will make their names to be remembered even by those who have never seen them. We still find the names of other older raisers, such as Lévêque, Liabaud, and Nabonnand, but they have not given us such striking results as those I have already mentioned. Another fact is that there does not seem to have been any more common sense in naming the varieties than heretofore. Fancy, for instance, Grande Duchesse héritière Anna Maria de Luxembourg; what would an English gardener make of this? We can only hope that it may not have such merit as to entitle it to be placed amongst our permanent Roses.

Another noticeable fact is that some of our British and American Roses find a place in these catalogues. Thus we have amongst Teas William Paul & Son's Duke of York; in Hybrid Teas, Mr. Geo. Prince's Clara Watson; in Hybrid Perpetuals, William Paul & Son's Clio and Dickson & Son's Marchioness of Downshire and Mrs. Sharman Crawford; in Noisettes, Grey's Alister Stella Grey and William Paul & Son's Lorna Doone. The following are the Teas, with the descriptions given of them by the raisers:—

ANDRÉ SIBOURG (Renoul).—A large globular flower, very double, salmon rose colour, bare of petals, the yellow shading off to silvery white; very free flowering and sweet scented.

BARONNE GASTON CHANDOS (Lévêque).—A very large full flower,

the colour metallic coppery yellow, shaded with peach and orange in the centre, the reflex golden yellow.

CHEVALIER ANGELO FERRARIO (Bernaix).—Very full, large flower, with large petals, firm footstalk, holding itself erect, purplish crimson red colour, lighted up with lighter carmine; a remarkable variety.

CLAIRE GODARD (Godard).—Variety with long pointed buds, a large full flower opening well, a pretty pure white colour; an abundant autumn variety.

COMTE CHANDON (Soupert & Notting).—A large full flower of a yellow lake (?) colour, with a bright citron-yellow centre, one of the most charming of the race; a cross between Lutea Flora and Coquette de Lyon.

EDOUARD VON LADE (Soupert & Notting).—Very large full flower of a bright rose colour; in the centre ochre, the reverse of the petals clear satiny carmine red; cross between Comte de Sembul and Socrates.

E. VEYRAT HERMANOS (Bernaix).—A large full flower, with a very pretty bud, yellowish apricot colour with amaranth rose at the backs of the petals; very sweet.

FIAMETTA NABONNAND, or Papa Gontier, with white flowers (Nabonnand).—This Rose comes with a grand flaming description, and the raiser thinks it sufficient to excite our admiration to say that it is as good in form and fuller than Papa Gontier; but the colour of this variety, which he describes as satiny white slightly tinted with carmine rose. It is not a sport, but said to be a cross between Papa Gontier and Niphotos.

FRANCIS DUBREUIL (Dubreuil).—This is said to be the finest red Tea Rose known, and is described as a full flower of a fine form, opening very readily, perhaps too much so; of a crimson red colour, with the reverse of petals cerise, with a long egg-shaped bud of great beauty.

GLOIRE DE PUY D'ANGOU (Nabonnand).—A good nearly full climbing Rose of a carmine red colour, and golden in the centre, and very bright and clear.

GRANDE DUCHESSE HÉRITIÈRE ANNA MARIA DE LUXEMBOURG (Soupert & Notting).—Large full flower, the outside petals large, the inside ones narrower; clear Naples yellow shaded with red, peach red in centre; the reverse of the petals, as well as the buds, which are long, are shining and striped like "Luciole." Sweet and floriferous. Cross between Maréchal Robert and Rubens.

HARRY LAING (Soupert & Notting).—A large full flower of a fine form, clear orange-red colour, rosy in the centre, carnation red on the reverse of the petals; cross between Earl of Eldon and La Florifère.

LOUIS LÉVÊQUE (Lévêque).—A very large full flower, very well made, with a very long bud of a reddish brick yellow colour, shaded with yellow and golden vermillion.

LOUIS NEYRET (Reboul).—Of a dwarf habit, with a large full flower of good shape, the colour of a China Rose, shaded to yellowy orange at the base, the outside of the petals with broad margins of white.

MADAME CHARLES FRANCHET (Liabaud).—Large full globular shaped flower of a clear rose colour, shaded with yellow; the petals with broad edges of bright rose colour (a rather new colour).

MADAME EMILIE CHARRIN (Perrier).—A long bud, the flower medium in size and full, opening well; large thick petals, of a fine China Rose colour, shading to a brilliant scarlet; very free flowering.

MADAME GEORGES BOULAND (Lévêque).—A large full flower, very well made, with a handsome bud; a fine brilliant sulphur yellow colour, very lightly shaded with orange-yellow red.

MADAME GEORGES DURRSCHMITT (Pelletier).—An enormous flower, nearly 7 inches across, a globular shape; many and large petals, bright China Rose colour; the reverse of petals scarlet, shaded to clear cerise in the centre; very sweet; cross between Christine de Noué and Madame Falcot.

MADAME HELOISE MANTIN (Lévêque).—A very large full flower, of a magnificent shape; a bright citron yellow colour, darker in the centre, and sometimes shaded with peach rose; a very effective variety.

MADAME JEAN ANDRÉ (Pelletier).—A large full imbricated flower, with a long bud, of a dark red colour, sometimes striped with bright rose; cross between Van Houtte and Madame de Tarius.

MADAME JULES SIEGFRIED (Nabonnand).—Large, full cup-shaped flower, with a long bud of a creamy white colour shaded with flesh colour, darker in the centre; a good climbing Rose; cross between Rêve d'Or and Baronne Henriette de Loew.

MADAME MUISON (Bernaix).—A large full flower, with the guard petals large clear yellow shaded with salmon yellow, with back of petals coppery yellow; very sweet. A remarkably new colour.

MADAME LAURENT SIMONS (Lévêque).—A very large full flower, of a coppery rose colour shaded with red, and tinted with scarlet red.

MADAME ROZAIN-BOUCHARLAT (Liabaud).—A large convex-shaped flower, of a pale yellow tinted with rose colour.

MADAME THIRION (Puyravard).—A large flower, white at base, centre dark rose, with the edge of petals silvery white, and shaded with rose on the reverse of petals; seedling from Madame de Chatry.

MADAME WAGRAM COMTESSE DE TURENNE (Bernaix).—A large flower with very large buds and of a beautiful shape, and a satiny rose colour and still brighter red when full blown.

MADAME DENISE DE RESERVAU (Lévêque).—A large full flower of good shape, of a beautiful white, slightly tinted with yellow colour and shaded bright ochre.

MDLLE. FRANÇOISE DE KERJÉGU (Lévêque).—A large full flower, white, but tinted slightly with rose, the centre sometimes peach-red, very light, and yellow at the base. It has a delicious perfume of Violets.

MDLLE. MARIE CREPEY (Pernet Père).—A good shaped, large full flower of a yellowish-white colour, edged and glossed with bright red. Seedling from Marie Van Houtte.

MDLLE. MARIE LOUISE BAGERIE (Chainey).—A large, full cup-shaped flower of a beautiful chrome yellow colour, the reverse of the petals delicately pencilled with red; in the autumn flowering it is a golden yellow seedling of Gloire de Dijon.

MADAME BONTOR PONTCARRE (Lévêque).—A large, good shaped flower of a brilliant light rose colour, shaded with darker red and apricot yellow.

MISS KATHERINE G. WARREN (Bernaix).—A large carmine-red flower shaded with garnet shading off to a brilliant China Rose shade; very free flowering.

MISTRESS MIRABEL GREY (Nabonnand).—A large, erect, medium full flower not unlike "Papa Gontier," of a dark, velvety, carmine-red colour on the outside, lighter in the centre; seedling of Papa Gontier.

PRINCESSE MARIE DE ROUMANIE (Soupert & Notting).—A large, good shaped, full flower, the petals large and rounded; a beautiful cream-white colour shaded with pale lake rose, and in the centre very pale vermilion red. A very delicate-coloured flower; cross between Madame Nabonnand and Souvenir d'un Ami.

PRINCESSE DUROUSOFF (Soupert & Notting).—A large full flower of a good shape, China Rose colour shaded with light melon yellow; cross between Paul Nabonnand and Madame Falcot.

ROSE D'EVIAN (Bernaix).—A very large, full, cup-shaped flower with a long bud of a fine magenta red before opening; the flower fine China Rose colour on the outside of the petals, scarlet on the inside of them.

SOUVENIR DE FERIKE D'AUTUNOVICS (Soupert & Notting).—A medium-sized flower, very full and imbricated, milk white colour; an excellent variety for cutting. Cross between Madame Maurin and Marie Lambert.

SOUVENIR DE LAURENT GUILLOT (Bonnaire).—A large, full flower of a good China Rose colour, peach yellow in the centre, and the edge of the petals tinted with carmine. A very pretty variety.

THERÈSE BARROIS (Nabonnand).—A large flower of a perfect shape, rose colour, the reverse of the petals dazzling golden China Rose colour when half opened, golden tint in the centre when full blown; very free flowering.

VALENTINE GANNET (Nabonnand).—A very large, erect, full flower with large petals bright clear rose colour, reverse of petals silvery-looking, and slightly tinted with carmine; very free flowering. A fine variety.

V. VIVO E' HIJOS (Bernaix).—A novel flower in colour, very full, and outside petals very large; carmine rose colour, lighter in the middle and at the base; the interior petals numerous and irregular, very bright, sometimes golden, sometimes salmon or apricot, and often tinged with carnation. The mixture of red and yellow shades gives this flower a very attractive appearance.

It is of course impossible to guess even what may be the real character of these flowers, nor do the raisers' names give any indication of their quality, and it seems as if all must be left in a state of uncertainty for another season. Many of the descriptions sound very tempting, but we have learned to discount these very largely, and we shall probably not err in doing so now. Sometimes one gets information more or less reliable from some of our English growers, but this year I have had positively none, and I doubt very much whether we shall see many of these novelties amongst us this season. I hope to give in a future number a description of the varieties offered in other classes.—*D., Deal.*

ROYAL HORTICULTURAL SOCIETY.

MARCH 12TH.

SCIENTIFIC COMMITTEE.—Present: Dr. M. T. Masters (in the chair); Mr. McLachlan, Prof. Müller, Prof. Church, Dr. Russell, Mr. Michael, Rev. W. Wilks, and Rev. G. Henslow (Hon. Sec.).

***Dendrobium Wardianum*.**—A plant was exhibited by Mr. Hugh Low, lately received from Burmah, remarkable for having four flowers, two on one stem and two on a second stem, each pair of flowers being quite distinct, but arising from the same point, and all four flowers with two lips. Dr. Masters undertook to examine and report upon them.

***Libocedrus decurrens*.**—Dr. Masters exhibited specimens received from Mr. Meehan of Germantown, Philadelphia, in which the terminal portions of the shoots had been attacked by some grub. The consequence was that the leaves, instead of being minute with mucronate tips and adherent to the axis, were broad at the base, free and lanceolate; thus bringing about what would seem to be a reversion to a more ancestral state of the foliage.

***Stelis*, sp. (?), Diseased.**—Dr. Masters showed some Orchid leaves with rows of circular spots, having a central hole, due to some fungus. The specimen was interesting from an historical point of view, because it was figured by Gerarde, "Herball" (page 1168), in 1597, under the name of *Viscum indicum* L'Obelii. Being an epiphyte, this and a *Tillandsia*, called *V. peruvianum* L'Obelii, were supposed to be parasites, like the Mistletoe. Gerarde describes the leaf of this Orchid as having "certaine round eies, such as are in the haft of a knife."

Chinese Primrose ×.—Some umbels of flowers were received from Mr. Cannell, stated to be a cross, originally effected by Mr. C. Green, of Reigate, between the original wild form of *Primula sinensis*, from N.W. China, and a garden form of the same plant. The wild form

had never previously been known to be crossed. It is figured in the "Gardeners' Chronicle," March 16th, 1895 (page 327).

Photos from New Jersey.—Dr. Masters exhibited a series of photographs illustrative of *Nelumbiums*, *Nymphæas*, &c., growing in the open in ornamental waters, from Mr. S. C. Nash, of Clifton, N.J.

***Pinus cubensis*, with *Androgynous Cones*.**—Dr. Mellichamp of Blufton, Sth. Carolina, forwarded some cones of one particular tree, which apparently produces this phenomenon every year.

Larch Canker.—Mr. Rogers sent a very characteristic specimen of this disease caused by *Peziza Wilcommi*. It appears to be due to the attack of this fungus after some injury, and then spreads throughout the tree. When this occurs no remedy can be applied, and the tree must be cut down. If, however, it be perceived early enough the infected part can be cut out, and coal tar or carbolic acid be applied to the wound; the fungus may then be killed and the canker arrested.

Orchid Leaves Decayed.—Some *Cypripedia* leaves were sent by Mr. O. O. Wrigley for examination. No fungus was apparent on a superficial examination. They were forwarded to Kew for further investigation.

***Trachymene*, fasciated.**—Baron Ferd. Von Mueller sent a specimen of this plant with this common deformity from near Coolgardie, W.A.

VEGETATION OF THE ITALIAN LAKE DISTRICT, ESPECIALLY OF THE LAGO MAGGIORE.

[Read at the Horticultural Club by Mr. H. BRISCOE-IRONSIDE.]

THIS subject, which Mr. D'Ombrian has honoured me in requesting that I should open this evening, is one which I think should indeed be taken up by the botanist rather than an inexperienced person like myself, as it is overflowing with the most interesting and knotty points, and is in many instances in exact contrast to what we experience here in England; and it occurs to me as being a somewhat startling fact, when one seriously considers the matter, that it is possible to find a climate so very different to ours after a journey of only about thirty hours.

Some of you present, gentlemen, may not be acquainted with that part of Italy to which I am referring, and I must include Switzerland, a small part of the Lago Maggiore being in that country; I will therefore endeavour to briefly describe the seasons and climate. Spring may be considered to open about the middle of February, summer about the middle of April (or generally immediately after the spring rains), autumn say the beginning of September, and winter about Christmas. The winter in ordinary seasons may therefore be roughly estimated at about seven or eight weeks. There are, however, several places in the Lake District where the winter is prolonged.

As is generally the case in all mountainous regions the variations in the temperature and weather are extreme and local, and this is particularly felt in this district—*e.g.*, 8 kilometres from Pallanza, where I resided, Lemons and Oranges flourished entirely out of doors. On the Isola Bella, about 2 kilometres distant, where Oranges are cultivated to a considerable extent, they are protected by wood coverings during the winter, and at Stresa, about 4 kilometres away, artificial heat is necessary.

The soil of the district is extremely sandy and stony, and considering that it does not rain for months at a time, you can imagine what the cultivation of plants and flowers in exposed positions means. I have seen huge trees, the leaves of which have flagged for a considerable period. For pot use I found that the best substitute for a retentive soil was the decayed wood of the Chestnut, which the native women easily procure in large amounts from the woods and carry on their backs. In consequence of the large quantity of silica in the soil the effect of a thunderstorm or heavy rain on land which at all slopes is disastrous, the soil being washed away in large quantities. To meet this contingency it is necessary to construct gulleys and small canals or rivulets with considerable forethought. The less said in the way the Italians fertilise the soil the better, as it is distinctly objectionable to the English idea, and should not, I think, be tolerated. It amply illustrated to me the force of the nigger's explanation on the effect of fertilisers—*viz.*, that directly a plant began to smell it endeavoured to run away.

The chief industry is the cultivation of the Vine. It at first struck me as curious how every native, in whatever sphere of life he was, seemed thoroughly well versed in this subject. I had a little practical experience myself, having some 200 or more Vines in my garden, which included Muscat, Barbera, a red Sweetwater, and an American. This last variety—which the Italians called "Americana"—has a very large and almost globular purple berry, is very fleshy and almost stoneless, and has a flavour somewhat resembling a Black Currant (I believe the strictly technical term is "foxy"). The wine made from it is, however, considered "rough," and is not much drunk by the better classes. It is, nevertheless, very popular in this part of Italy on account of its robust growth, its distinct superiority as a stock for grafting, and also for its greater resistance to the phylloxera. I may remark that the flavour of the berry is perceptible in the sap, which might also account for the less vigorous attacks of the insect.

It may perhaps be of some interest if I mention a few details on the subject of phylloxera, as one of my most intimate friends was the Anti-Phylloxera Delegate appointed by the Government to this district. I thus heard a good deal, and I may add as a further reason for cultivating a closer acquaintance on the subject was that one morning I found a score or so of men disturbing the roots of several of the Vines in my

garden, and were all hard at work with picks and shovels without having given me notice (the Englishman's house being his castle is not so well appreciated in Italy as in England). However, the foreman and I were soon friends, as he told me he had lived in England for some time. Pieces of the roots of every Vine were examined by these rough labourers, and it is remarkable how they are easily able to detect any sign of the pest. I did not feel at all at ease until they had taken their departure, as the remedies employed for preventing the ravages of phylloxera are very severe in Italy. Immediately the disease is discovered the very next day a large troop of men appear with their implements, superintended by the Government Delegate, and inject sulphide of carbon into the ground at about every 2 metres. All parts of the Vine, branches, leaves, and roots are dug up, and placed in heaps and fired. Wherever the injector is inserted everything living within a radius of 2 to 3 metres is effectually destroyed, and nothing will grow, so I was informed, for nearly five years after. The Government compensate to the extent of 30 per cent. on one year's crop.

While I was living at Pallanza the phylloxera was discovered on a very large portion of the Monte Rosso, tenanted by men who had supported their families for many years by the cultivation of Vines and Beans. The Government Delegate was informed that any attempt to interfere with the soil would be resisted by force. At the approach of the Carabinieri and soldiers bells were sounded, and the women and children mustered in great numbers and clung to the invaders, so that they were powerless to do anything. Finally the Government abandoned the affair. Plants are forbidden to be sent out of an infected district, although flowers and cuttings may be sent by pattern post. There is also a great deal of difficulty and trouble in introducing plants into Italy from England, except by pattern post, owing to Great Britain having declined to enter into the Berne Convention.

My friend informed me very seriously that Italy had to thank England for the introduction of phylloxera, and stated that it was traced to some private vineyard in England. Not being in a position to contradict this statement I merely laughed, and replied that it was fortunate for him that England had been so attentive, as otherwise he might not have found employment.

In all good vineyards the Vines are syringed three or four times during the season as a preventive against mildew, which the natives call "Peronospera." The mixture employed usually consists of 6 kilos, or about 13 lbs. sulphate of copper to 100 litres of water, with sufficient lime to give substance. The object of the lime is that the sulphate of copper may not be so easily washed off by rain. I mention this little point, as I have recently observed in the horticultural press other reasons for the use of the lime. The effect of the application is plainly noticeable, as where not used the leaves are more or less withered before the berries are ripe, and in consequence the fruit is impoverished. I may mention that in this district the white Muscat suffered most from Vine mildew, and was, of the four kinds I have mentioned, certainly the least robust.

I observed that Vine mildew and Chrysanthemum mildew were most prevalent in Italy during the two hottest months—viz., July and August, and it has seemed to me as not improbable that the great variations in the temperature during these two months might at least be responsible for the encouragement, if not actually the origin of these diseases.

Vines are usually planted about 10 to 12 feet apart, are allowed four rods, and are trained to closely cut Mulberries, Laburnums, or other trees, or strong stakes supported triangularly, but very frequently they are formed into arched avenues. The berries keep well for months if cut with the foliage and hung in ventilated rooms. After they have been pressed for wine the skins are again pressed into circular shapes and dried in the sun, and are then used by the poor class for firing. The leaves are generally removed from the trees just before they would naturally fall, and are put to various uses; there, therefore, is not much waste in the "Vine," although I observed that the sampling of the produce seemed on rather an extensive scale.

One cannot pass through this district without admiring the trees and their luxurious growth, and what is particularly striking at first is that they seem to have no rest whatever, for almost as soon as the leaf has fallen the bud appears again, and I suppose that is owing to this continuous and rapid growth that the timber is soft and coarse-grained, and an interesting comparison is seen with the English and Italian Oak, but especially is observable the rapidity of the growth of the Acacia.

An arborist or a lover of trees would find sufficient interest and pleasure for some time in the Isola Madre, about half a kilometre from the shore of Pallanza. This island is of considerable repute for its very choice and rare collection of trees, and is a show place like its sister island, the Isola Bella. I have heard that there is no other such representative collection of tropical trees so near to England as is to be found on this island. The two islands I have mentioned, and also the Isola Piscatori, which is only inhabited by fishermen, are known as the Borromean Islands and belong to the old Italian family of Borromeo. Conifers, Rhododendrons, and Azaleas are magnificently represented at the Villa Clara Baveno, where Her Majesty stayed in 1879. Magnolias flourish and abound everywhere, and there are some typical examples in the noted Franzosini Gardens. Fratelli Rovelli of Pallanza have also a very fine and extensive collection of trees of all kinds, and are specially famed for their Conifers.

How well the climate and soil suit trees and how easily they grow may be partly seen in an instance which I will quote. I was having a tennis lawn made in my garden, and it was necessary to remove two good-sized Apple trees, the trunks of which were not less than 18 inches

in diameter. My surprise was great when I saw that these two trees were only resting on soil of about 6 inches in depth, the rock being immediately underneath, and that the roots which were only just covered extended for a very long distance. The trees were standards, probably thirty years old, and to see them as it were with their big trunks only just resting on the top of the ground, much impressed me at the time, as it seemed as if the slightest breath of air must of necessity blow them down. They amply conveyed to my mind how beautifully controlled are the laws of gravitation in Nature.

The climate clearly points out the effect of dry *versus* moist air, as flowering plants, which require protection in England, flourish in Italy when there is a stiff and continuous frost, and as a foremost and most simple example I may instance the Camellia. I cannot presume to adequately describe Camellias in bloom in Italy, but once having seen them the effect can never be forgotten. The trees grow to a considerable height, and are smothered with blossom from top to bottom.

Palms thrive in the open, as also the Mimosa, Oleanders, and Bamboos; but those shrubs and plants that are apt to suffer or break their branches from snow are generally protected with straw caps or umbrellas. In this district snow is very capricious, but, roughly speaking, except on the mountains it rarely falls to any great depth or lasts for any time, although I am able to say that this season has been an exceptional one there. When there is a fall of snow, it is at once seen that Bamboos are not lovers of a snowy country, in consequence of the extensive snapping of the canes after only a slight fall. The effect of a fall of snow of any extent is often very disastrous to trees and shrubs by reason of their very luxuriance. Hydrangeas and Salvias are very fine, while the Castor-oil Plant also grows very freely, and produces a very decorative effect.

Roses are luxuriant, although the semi-double and Monthly Roses seem to do best; but the climbing varieties are the most patronised. Maréchal Niel grows freely, but I missed the charming, and if I may say, original shade of yellow of the long and graceful bud as seen in this country. So far as I was able to judge the sun seemed to be too much for the large double flowers, and reds soon lost their colour. A very popular Rose in this district, and one which is often seen on the houses, is I think known as Fortune's Yellow. The flower, although of some size, has not much substance, but its tints are exquisite. A house not far from mine was covered to the roof with this variety, and the effect can be better imagined than described. I believe this variety does not flourish here.

Roses are practically not cultivated, and do not succeed as standards, possibly due to the great heat affecting the trunk; and I would remark, if I may, although I have only a very little practical experience of standards either in the case of Roses or fruit, that it has seemed to me theoretically that there might be the same disadvantage to standards in this country, though from the opposite cause—viz., cold, and I have often desired to ask whether the "canker" of fruit trees is evenly balanced between standards, bush or other systems of cultivation.

Geraniums are not a success, as they go to leaf, and often very little of that; but Cannas are evidently suited to the climate, and are most useful, and require but little attention.

The mountains have quite a little flora of their own, and include such flowers as the Gentian, Edelweiss, and many kinds of Cacti, which blossom profusely.

The growth of grass is remarkable, the crops varying from two to four in a season. I sowed a lawn with seed in the first week of April and at the beginning of the next month the grass had grown 1½ inch in height, but it would have been entirely burnt had I not paid great attention to it. Lawns in Italy will not bear comparison with well kept English grass, the sun perhaps being considerably responsible for this, but rolling, which I never saw a native doing, would have doubtless improved matters. My lawn was the recipient of many compliments entirely due to the roller, but I may state that wherever an Englishman resided his garden was generally a subject of remark. The effect of burning grass, as also the use of wood ashes on a silicious soil, produced a highly satisfactory result.

Vegetables in this district give much trouble, especially to suit an Englishman's fastidious tastes. Even the native sorts do not succeed well in this part, and English varieties, with but few exceptions, are out of the question. The climate suits Melons admirably, but Tomatoes from English seed have a great deal of disease, although the native kinds seemed to be exempt, and were also more bitter in flavour than ours. Maize is extensively cultivated in this part, polenta forming one of the chief articles of food for the poor.

Fruit trees such as Apples, Pears, Plums, Cherries, Japanese Medlars, Apricots, Peaches, and Figs all bear immense crops, depending greatly on the weather of the month of May, the two evils being cold wind and hail (I believe this is also the case in England). In the absence of these, good crops may be expected, although, as with us, Apples and Plums alternate more or less. Figs fruit twice, and are very luscious, as also are Peaches, the fruit being much softer and more juicy than English Peaches, and, what is an important point, are marvellously cheap; but of Grapes it is difficult to speak, as I cannot say whether it is the flavour or the thinness of the skins or the quantity that makes Italian Grapes so much appreciated, but probably it is the *tout ensemble*. They should not, however, be eaten too generously and without care, as they form a very important medicine on the continent, for besides that which is known as the "Grape cure," which I believe is efficacious in consumptive cases, the Grape has other medicinal properties—e.g., I heard from a recognised authority that Grapes eaten in the early morning have a

lowering effect, and were so appreciated by doctors, and that eaten in large quantities they entirely alter one's constitution. The American Grape, to which I have referred already, is not recommended by doctors on account of its heating properties.

A great scourge to fruit trees in this district, particularly to Apples, Pears, Plums, and Quinces, is a bright red caterpillar, which the natives call "bruco rosso," and which if not checked literally mines the trees. The only means of eradicating this insect is to cut into the tree and so get it out. I spent many hours in this amusement, and afterwards had all the trunks limewashed, which seemed effectual, as I was not further troubled myself with these creatures while residing in Italy. Some large trees had, however, been so badly attacked as to be of no further use.

A great plague also was another caterpillar which we frequently see in England. When I took possession of my garden I noticed at the top of some Firs large bags of web, which I had brought down. They contained myriads of these caterpillars, each insect being about $1\frac{1}{2}$ inch long. My man collected seventeen of these bags, and I weighed one, and it turned the scale at $3\frac{1}{2}$ kilos, or rather more than 7 lbs., but I understand this is no unusual weight. To destroy them was not such an easy matter as it appeared. We first of all adopted the plan occasionally followed in destroying wasps' nests—viz., soaking them with petroleum and then setting them alight. But this was of no avail, as the web proved quite fire-proof, and not the slightest visible effect was produced. I then had a big fire made, and the webs opened and turned inside out, and the contents thrown on to the fire, but I never wish to witness again so unpleasant an operation. I suppose we must have overlooked a bag somewhere, for later on in the year I noticed a large Apple tree literally smothered with these caterpillars, and nearly every leaf devoured just before the fruit would have ripened. It was a good Apple year, but the fruit from this tree dropped prematurely. I may add that these bags of web, which were I suppose their hibernating quarters, were frequently to be seen in this part.

Doubtless the almost utter absence of birds in the district accounted for the multitude of insects of all kinds. The poor birds hardly seemed to have a chance, and directly a sparrow was seen it was shot at. Anyone travelling in this part will at once have his attention attracted to the number of little birds, including robins and nightingales, exposed for sale. Moreover, the natives have not the slightest regard to where or how they shoot, and I have an old Panama at home which has saved my headpiece scores of times.

In conclusion, gentlemen, I will say that my little experience of practical or theoretical horticulture was considerably modified during my residence of about three years in Italy, and I will quote an instance as to what I mean. I observed my man one day with several Acacia boughs, of which he was pointing the ends. These branches were from 2 to 3 inches in diameter and perhaps 7 or 8 feet long. On my asking him what he was doing, he replied that the hedge wanted repairing, and that he was putting in a few trees. These boughs, after being well pointed at the end, he pressed into the dry stony ground as far as he could, and his statement was fully borne out, as the following year the boughs were in blossom.

ACACIA OVATA.

THE utility of Acacias as winter and spring flowering plants is becoming more and more recognised, and rightly so. There are numbers of varieties all possessing great merits, but none, perhaps, is more useful than the variety portrayed in fig. 45, and of which a correspondent recently sent us a splendid spray, with the request that we should furnish him with the name. The character of the plant is fairly well shown in the engraving, but the spray has necessarily had to be reduced. It is most useful for culture in 48-size pots, being of dwarf bushy habit, and producing its bright yellow flower heads freely. The plant is easily grown, readily forced, stands well, and is altogether exceedingly useful, being more graceful than the early Acacia platyptera.

A SCOTTISH LADY HORTICULTURIST.

THERE are few more earnest horticulturists in Scotland than Mrs. McDouall, of Logan House in Kirkmaiden parish, Wigtonshire. Throughout the entire year it is a pleasure to me to pay frequent visits to her extensive and beautiful gardens, either in her own company or that of her head gardener, Mr. Gilbert McMicking. There is no season, however exacting the atmospheric conditions, in which flowers are not discoverable there. In the spring the Daffodil, the Crocus, the Hepatica, the Tulip, and Anemone; in the summer, the Rose, the Viola, and the Eastern Lily; in the autumn the Dahlia, the high-towering Hollyhock, and the long-lived Chrysanthemum; in the winter the yellow Jasmine, Viola odorata, and the Christmas Rose. At all periods of the year there are flowers under glass. Nearly a fortnight ago, on February 25th, I was presented by Mr. McMicking with two very fine blooms, grown in the central conservatory, of Souvenir d'un Ami, and the white Banksian Rose. Mrs. McDouall has always been an enthusiastic Rose cultivator; and her collection embraces all the more celebrated Hybrid Perpetuals, Bourbons, Chinas, Noisettes and Teas. My love of Roses was first created by periodical visits to Logan Gardens; and I well remember that, twenty years ago, my supreme favourites were Duke of

Edinburgh and Beauty of Waltham, two varieties of enduring attractiveness, which have always been splendidly cultivated there. Mrs. McDouall has been adding very largely of late to her stock of Tea Roses and Hybrid Teas; but it is extremely unfortunate for her first experience of many of these, and especially those of recent introduction, that last summer should have proved, for obvious reasons, so unfavourable to their floral development, and that the recent winter should have been one of unprecedented severity.

Mrs. McDouall is, like all true lovers of Nature, very fond of climbing flowers, which are largely cultivated both in the garden and in the conservatories. Among these are the various species of Clematis; Tropæolum speciosum, which grows to a great height and luxuriates everywhere; the exquisitely graceful Ipomœa cœrulea; and Lapageria rosea, which is also much grown by Madame Adelina Patti at Craig-y-Nos Castle. The south wall of the flower garden, which encloses



FIG. 45.—ACACIA OVATA.

the picturesque ruins of Logan Castle, is covered in summer with Clematis montana, Tropæolum speciosum, and those highly ornamental Noisette Roses, Celine Forestier and Rêve d'Or. These and many other stately climbers bloom contemporaneously, creating an impressively artistic effect.

It should also be recorded that the Lady of Logan is a great cultivator of Oriental Lilies, among her possessions in this floral department are Lilium Henryi, L. auratum platyphyllum, L. Humboldtii, speciosum Kraetzneri, Martagon album, candidum, davuricum, tigrinum splendens, Krameri, and L. longiflorum giganteum, of which the last mentioned is almost identical with the Lily of Bermuda, L. Harrisii. These she grows midway between the gardens and the mansion house on circular borders previously monopolised by Azaleas and Rhododendrons, which had to give place to their more admired successors, the natives of Siberia, America, China, and Japan.

Fruits of various kinds are largely cultivated at Logan, among those which succeed best being the Black Hamburgh, Buckland Sweetwater, and Muscat of Alexandria Grapes; the leading varieties of the Peach;

the Guava, a fruit which, in Scotland at least, is too seldom seen; the Sultan, Monarch, Green Gage, and Victoria Plums; the Duke, Early Rivers, and Bigarreau Cherries, and all the more prolific modern Apples and Pears. Mr. McMicking, the superintendent of the gardens, is thoroughly conversant with the subject of fruit cultivation. He had the great advantage when a young man of being assistant to the late Mr. Fowler, head gardener to the Earl of Stair at Castle Kennedy, who made this fascinating form of culture a great speciality, though he was also an authority on tropical plants and flowers. Mr. McMicking's favourite pomologist, many of whose finest creations he has, like myself, been recently acquiring, is Mr. T. Francis Rivers. I have for many years been confident of this, that without a considerable number of the invaluable fruit trees which have originated at Sawbridge-worth, no collection would be complete.

As an instance of Mrs. McDowall's deep interest in fruit culture in all its aspects, it may here be recorded that during last summer she made a pilgrimage to King's Acre, Hereford, distant at least 300 miles from Kirkmaiden, in order to inspect the extensive orchards there; and she has often subsequently spoken of that visit as one of the most interesting within the range of her remembrance. She was also much impressed on that occasion with Mr. Cranston's collection of Roses.

Mrs. McDowall's genial and accomplished husband, who is almost equally interested in horticulture, though the science of astronomy is his predominating theme, is one of the most extensive proprietors in the south of Scotland. His father was colonel of the 2nd Life Guards, and was, I understand, a great favourite of Her Majesty the Queen. He was an eminent agriculturist, and made the desert rejoice and blossom with the Rose, or at least with the scarlet Poppy that grows among the corn. Mrs. McDowall is a daughter of the late Sir Thomas Hepburn, Bart., of Smeaton Hall in Haddingtonshire. She is, like several contemporary horticulturists, among whom is Mr. Harry Turner of Slough, a highly accomplished instrumental musician; and though she plays the piano-forte with infinite expressiveness, she is more deeply attached to the English concertina. Her master passions are music and the love of horticulture. Her life is divided between the daily practice among the destitute and the suffering of unobtrusive beneficence, and the cultivation of those noble and gracious arts.—DAVID R. WILLIAMSON.

LIVERPOOL NOTES.

ON Saturday evening Mr. T. White presided over a very good attendance of members at the William Brown Street Museum, the subjects for the evening's discussion being "The Cultivation and Judging of the Pea," by Mr. J. Smith, Waterdale, St. Helens, and "Two Methods of Preserving French Beans," by Mr. J. Fairhurst, Aigburth.

PEA CULTURE.

Mr. Smith stated that to grow the Pea to perfection it was essential that the ground be well drained and deeply trenched. Notwithstanding the many varieties catalogued, he considered the two best to be Ne Plus Ultra and General Windham. Should it happen that too many were coming in at one time, he advocated stopping two or three times as the case might warrant. He was not in favour of the largest Peas when judging, but preferred a moderate sized, well-filled pod of fine flavour, the latter he considered the greatest point in the test. An interesting discussion followed, Mr. Mercer strongly advocating the dwarf varieties for small gardens, Mr. Stoney favouring the tall growing varieties for abundance of crop.

PRESERVING FRENCH BEANS.

Mr. Fairhurst, in referring to this subject, suggested two methods, the first being to procure earthenware jars about 20 inches deep and across. Cut the Beans as usually served to table, placing a layer of them 2 inches deep at the bottom, then 1 inch of salt alternately, until the jar was filled. Place on the top two or three Vine leaves, then cover with a piece of wood or earthenware lid, on the top of which, as pressure, place a heavy stone. In a day or two remove the covering, fill up again with Beans, remove the Vine leaves, covering as before. When wanted for use take out the Beans required for the day, and steep in cold water two or three hours before using.

The second method was to have earthenware bottles with good sized necks, run them through boiling water, then dry thoroughly. Place a piece of sulphur on a plate and set it on fire, placing a funnel over it. Hold the necks of the bottles on to that of the funnel for about a minute to sulphur the bottles inside, corking them to keep in the sulphur. Cut the Beans as mentioned in the first method, and boil for about fifteen minutes with sufficient salt to season, taking care of the liquid. Fill the bottles three parts full of Beans, and the remainder with the liquid. Cork tightly, place in a pan of water, boil for a short time, taking care that no water enters the bottles. A bottle of Beans should be used when opened, as they will not keep for any length of time. The usual votes of thanks were carried unanimously.—R. P. R.

FORCED STRAWBERRIES.

AVERAGE WEIGHT OF FRUIT PER POT.

ON page 234 "Saynor," with that keenness which gardeners have long associated with the name, manages, in a very plausible way, to advance a rather ticklish question for my consideration. It is not an unusual occurrence for Strawberry forcers to record in the horticultural

press the weight of some abnormally heavy crop, but any attempt to define "a fair average crop per pot" has been left for the fertile brain of a "Saynor" to suggest, and a humble "Fragaria" to act on. So now to the talk.

At the commencement I shall take my stand on the conviction that the mere weight of fruit produced per pot gives no definite idea of its value for commercial purposes or for private use. Undersized fruits are not valued by employers, and will only be purchased by the public at very low rates. This points out clearly that our aim must be to produce as many large fruits per pot as the plants are able to perfect. To accomplish this we must confine our attention to crown flowers only; side flowers should therefore be removed as soon as they appear.

In early Strawberry forcing it is generally a difficult matter to induce more than six crown flowers to expand within a few days of each other, and I find that if the plants are kept under conditions favourable for securing fertilisation for only a few days longer to allow other flowers to open the earlier fertilised flowers fail to swell their fruits satisfactorily, the somewhat dry conditions necessary to fertilisation having caused the skins of the young fruits to toughen. Under these circumstances I maintain it is better to be content with a good half dozen fruits than to spoil their chances of developing properly by waiting for other flowers to set.

From the present time onwards the setting of the flowers is a comparatively easy matter, and it is not difficult to obtain from twelve to fifteen fruits on a large per-centage of plants; but these will scarcely ever be uniform in size, and it is a well-known fact that those which are comparatively small when they commence swelling will exhibit the same characteristics when ripe, and I maintain that if nine of the largest and best formed fruits are retained the extra size they will grow to will fully compensate for lack of numbers.

In regard to the weight per pot, if we take such varieties as Sir C. Napier, Noble, or James Veitch, if well grown, but few of the fruits should weigh under 1 oz., and one-third of the number will usually be considerably heavier. Making due allowances for pots having less than nine fruits, and for fruits weighing less than an ounce, my estimate for a fair "average weight of fruit per pot" is 5 ozs., and those who can maintain such an average will be no mean adepts in the art of Strawberry culture.

As to the query, "What per-centage of plants may be expected from good culture to be worthy of retention at the final stage?" the answer to this depends largely on two important matters—viz., the care exercised in selecting the runners at layering time, and the precautions taken not to force the plants on too rapidly in the early stages of growth. If these matters receive due attention, 95 per cent. If they are neglected the per-centage will often fall as low as 70 or 80.

I have given you what you asked for, "Saynor." Now cut it to pieces with your keen-edged blade.—FRAGARIA.

SPRING SHOWS.

CRYSTAL PALACE.—MARCH 16TH.

THE first show of the year at the Crystal Palace was held on the above date, and cannot be termed a great success. The classes provided numbered twenty-eight, but in many of these there were no entries, whilst in others there were only one or two. This is not very encouraging for the Crystal Palace Company, who, with Mr. Head, do their utmost in the way of advertising and offering of substantial prizes; and they certainly deserve far more support. We trust at the corresponding show in 1896 that not only will there be a very much larger number of entries, but that the quality of the exhibits will be much better than was the case this year, when it was, with few exceptions, decidedly below the average. We append a list of the prize-winners in the chief classes in which there were exhibits.

One of the principal classes was for thirty-six Hyacinths, and despite good prizes there were only two competitors, of whom Mr. Jas. Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford, was an easy first, though not showing quite so well as he has done in previous seasons. Amongst the varieties staged, the following were noticed as being the best and having the finest spikes and the richest coloured flowers:—Grandeur à Merveille, Garibaldi, Princess Mary of Cambridge, King of the Blues, Etna, Lord Derby, Princess of Wales, Mont Blanc, Captain Boyton, Vuurbaak, Sir Henry Barkley, Electra, Koh-i-Noor, Souvenir de J. H. Veen, Gigantea, La Grandesse, Czar Peter, Charles Dickens, and the Sultan. Messrs. Jas. Winter & Sons, West Norwood, were a very poor third, no second prize being accorded.

The chief Tulip class was for thirty-six, three bulbs in a pot, and here again Mr. J. Douglas secured the premier position. The plants were dwarf, sturdy, strong, and carrying handsomely formed flowers of good size and strikingly rich colours. Particularly prominent were Keyser's Kroon, Ophir d'Or, Duchesse de Parme, Vermilion Brilliant, Joost Van Vondel, Proserpine, White Joost Van Vondel, Fabiola, and Van der Neer. The only other competitor was Mr. W. Howe, gardener to H. Tate, Esq., Park Hill, Streatham Common, who received the second prize. His plants was somewhat tall and leggy, but carrying very creditable flowers; Keyser's Kroon, Chrysolara, Van der Neer, Vermilion Brilliant, and Proserpine were conspicuous.

The same exhibitors as in the previous class were opposed in that for twenty-four pots of Polyanthus Narcissi, and the same order with regard to prizes was maintained. Mr. Douglas' stand comprised Mont Cenis, Grand Monarque, Gloriosa, Adonia (a handsome, free blooming,

yellow variety), Bazelman Major, and Jaune Supreme. The plants were capital examples of good culture. The plants in the second prize stand were fairly good, carrying good numbers of flowers.

Mr. W. Howe was a very fine first with twenty-four pots of Narcissi, Daffodil section, showing Sir Watkin, Princeps, Bicolor Horsfieldi, Telamonius plenus and maximus in magnificent form. Mr. J. Gibson, gardener to E. H. Watts, Esq., Devonhurst, Chiswick, was a highly creditable second.

Decidedly one of the best features of the whole show were the Cyclamens shown by Mr. J. Mowbray, gardener to Major the Hon. H. C. Leggc, Fulmer, Slough, in the class for thirty-six pots, and for which he very deservedly received the first prize. All the plants were dwarf and sturdy, clothed with clean well-marbled foliage, and carrying splendid flowers on stout footstalks well above the leafage. The colours were rich and well diversified. Mr. T. Pestridge, Boston Park Road, Brentford, was a poor second.

The first prize for twelve Amaryllises was gained by Mr. J. Douglas with well-grown plants, conspicuous amongst which were Mrs. Laing, Melpomene, Urania, Thalia, Mrs. Douglas, Erato, Terpsichore, Euterpe, Clio, and Polyphema. Mr. William Howe was second with good examples.

For twelve Cinerarias Mr. J. Douglas was first with fair plants, and Mr. J. Slater, gardener to Mrs. Nothard, York House, Lower Sydenham, was placed second. Mr. W. Barrett, gardener to Mrs. Thornton, The Hoo, Sydenham Hill, was the only competitor in the class for nine trained plants of Mignonette, for which he was awarded the first prize.

One of the chief classes was for a group of flowering and foliage plants to be arranged in an oval space, 12 feet long by 9 feet wide, and faced all round. Messrs. J. Laing & Sons, Forest Hill, were the only competitors, and deservedly took the first prize. Amongst the plants utilised were some fine Orchids, handsome Caladiums, Palms, Ferns, Amaryllises, Clivias, Begonias, Crotons, and Ericas. Unfortunately, the space at disposal did not give Messrs. Laing sufficient scope for the display of their talents in the arrangements of plants, and it is to be hoped that the space will be increased three or fourfold at a future exhibition, when a far better result will be obtained.

The first prize for twelve Hyacinths, distinct, was won by Mr. J. Gibson for a collection consisting of Gigantea, Von Schiller, King of the Blues, Princess Amelia, Koh-i-Noor, La Innocence, Moreno, Lord Derby, La Grandesse, Souvenir de J. H. Veen, Macaulay, and Electra. The second prize fell to Mr. W. Barrett, the best flowers being Lord Derby, King of the Blues, and Sterling Beauty; Mr. John Schumacher, gardener to M. Jacoby, Esq., Lynwood, The Avenue, Gipsy Hill, London, being a close third.

The class for twelve pots of Tulips was only poorly represented, Mr. James Gibson gaining the first prize with a group in which were Ophir d'Or, Keyser's Kroon, Joost Van Vondel, Van der Neer, Proserpine, and Rose Luisante were conspicuous. No second prize was awarded, and the third prize fell to Mr. James Wyatt, gardener to J. Perry, Esq., Bradenurst, Caterham Valley. For twelve Polyanthus Narcissus in pots Mr. James Gibson was the only exhibitor, and was awarded first prize, the chief varieties being Her Majesty, Gloriosa, Mont Cenis, Jaune Supreme, and Bathurst. In the class for six pots of Lily of the Valley, Mr. C. Lane, gardener to E. H. Coles, Esq., Brentwood, Upper Caterham, Surrey, was first, the pots being exceedingly well furnished.

There were four entries in the class for twelve Cyclamens. Mr. W. Slogrove, Gatton, Reigate, was a good first; Mr. F. Watts, gardener to O. J. Trinder, Esq., Mount Vernon, Caterham Valley, being second, and Mr. C. Lane third. Mr. James Bateman, gardener to Mrs. King, Sydenham Hill, was first for twelve Chinese Primulas with well-flowered examples, Mr. C. Lane being a fair second, and Mr. Spong, gardener to C. D. Lord, Esq., Dunearn, Sydenham Hill, third. Mr. J. Mowbray was first for a table of Cyclamens arranged for effect, and was the only competitor.

The miscellaneous exhibits were not very numerous, but some flowers and plants of good quality were to be seen. Messrs. W. Paul & Son, Waltham Cross, staged a fine collection of Camellia blooms, and also pots of Duke of York Rose. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, sent a fine group of hardy flowers, comprising Irises, Narcissi, Dog's Tooth Violets, Crocuses, Saxifragas, and Spiræas, amongst others. Messrs. J. James & Son, Farnham Royal, exhibited Cinerarias in superb condition, while Messrs. J. Peed & Son, Norwood, arranged an effective group of flowering and foliage plants, and also showed floral decorations, in which Lichens played a prominent part.

One of the most handsome exhibits in the miscellaneous section was a group arranged by the Crystal Palace Company. It comprised foliage plants principally, but was relieved by Hyacinths, Tulips, Richardias, Clivias, Azaleas, and a few Orchids. It was placed in an oval space, and reflected great credit on those responsible for its formation. From Messrs. J. Laing & Sons came plants of Nicotiana affinis variegata, Bertolonias, and others.

READING.—MARCH 19TH.

THE above Society held its spring bulb show on Tuesday at the Queen's Hall, Valpy Street, Reading. The competition in some of the classes was not keen, though the exhibits in most were of a high order.

In the class for eighteen Hyacinths in pots the first prize was gained by Mr. Turton, gardener to John Hargreaves, Esq., Maiden Erlegh, for well-bloomed plants of Duke of Albany, Sutton's Matchless Blue, Sutton's Matchless Yellow, King of the Blues, L'Innocence, King of

the Reds, Sutton's Inimitable, pure white, and others. Mr. Dockerill, gardener to G. W. Palmer, Esq., Elmhurst, Reading, was second with a collection containing good spikes of Princess Mary of Cambridge, L'Innocence, Captain Boyton, and La Grandesse. The third prize fell to Mr. Woolford, gardener to Alfred Palmer, Esq., East Thorpe, Reading. In the class for twelve Hyacinths, Mr. W. L. Walker, Balmershe Road, was awarded first prize, this being the only exhibit in the class.

There was only one entry in the class for six pots of Tulips. Mr. Turton was awarded first prize, his exhibit consisting of Vermillion Brilliant, Pottebakker White, Duchesse de Parme, Joost Van Vondel, Keyser's Kroon, and White Joost Van Vondel. For three pots of Tulips Mr. Woolford, the only competitor, secured the first prize.

Mr. F. Lees, Connaught Road, Reading, gained first prize for six pots of Lily of the Valley, Mr. Dockerill being second, and Mr. Woolford third. The first prize for three Dielytra spectabilis was gained by Mr. Dockerill, the second by Mr. Bright, gardener to J. Karslake, Esq., and the third by Mr. Woolford. For six pots of Spiræa japonica Mr. F. Lees was first, Mr. Willis, gardener to H. J. Symonds, Esq., Caversham, second, and Mr. Turton third. Mr. Bright was first for four Deutzia gracilis, Mr. Dockerill second, and Mr. Booker, gardener to J. B. Monck, Esq., third.

For three Azalea indica Mr. Bright was first, and Mr. Booker second. Six Azalea indica, Mr. Turton was first, there being no other exhibits. Mr. Woolford was first for six Cinerarias, Mr. Willis second, and Mr. Chamberlain third. For three Cinerarias Mr. E. Chance, The Shrubberies, Burghfield, was first, and Mr. Hinton, gardener to Major Babbiscombe, Bath Road, Reading, second.

The first prize for six stove and greenhouse plants was gained by Mr. Turton with Acacia armata, Dendrobium nobile, Imantophyllum miniatum, Azalea amoena, Begonia gigantea, and Phalaenopsis Schilleriana. For three Cytisuses, Mr. Bright was first with well bloomed plants; Mr. Chamberlain second, and Mr. Booker third. The first prize for six table plants was won by Mr. Woolford, and the second by Mr. Dockerill, these being the only two exhibits.

Mr. Chamberlain was awarded first prize for six single Primulas, his plants being large and well bloomed. The second prize fell to Mr. Dockerill, and the third to Mr. Willis. Only one exhibit appeared in the class for six double Primulas, for which Mr. Barker was awarded first prize. The class for six Cyclamen were represented by three exhibits, Mr. Woolford gaining first prize, Mr. F. Lees second, and Mr. Booker third. The first prize for a group of flowering plants arranged for effect, in a space not exceeding 60 square feet, was gained by Mr. Woolford with a fine collection, amongst which were Euphorbia jacquiniæflora, Narcissi, Arum Lilies, Hyacinths, Cinerarias, Tulips, and Cyclamens. Mr. F. Lees was a close second with a neat collection; and Mr. Chamberlain third.

The first prize for three Orchids was gained by Mr. Turton for splendidly bloomed plants of Cymbidium Lowianum, Dendrobiums Wardianum and nobile. The second prize fell to Mr. Bright for Dendrobium nobile and Coelogyne cristata, and the third to Mr. Woolford. Mr. Turton was first for twelve cut Roses.

FRUIT.—Mr. F. Lees gained first prize for six dishes of dessert Apples, consisting of Barnack Beauty, Baumann's Red Reinette, and Riene des Reinettes. Mr. Turton was second with Cockle Pippin, Sturmer Pippin, Northern Spy, and others. For six dishes of kitchen Apples Mr. Turton was first with good fruit of Annie Elizabeth, Alfriston, Rymer, Wellington, Northern Spy, and Norfolk Bearer; and Mr. F. Lees second. Mr. F. Lees was the only exhibitor for three dishes of dessert Pears, gaining first prize with Easter Beurré, Olivier de Serres, and Josephine de Malines. The prize for one dish of Strawberries fell to Mr. F. Lees, who was the only exhibitor.

Miscellaneous exhibits included a fine collection of flowering plants, and floral designs by Messrs. Phillips, Broad Street, Reading; and Mr. Perkins, gardener to Hon. F. D. Smith, M.P., Greenlands, Henley-on-Thames, staged eighteen Amaryllis arranged with Palms and Ferns.

ROYAL BOTANIC SOCIETY.—MARCH 20TH.

THE first spring show of this Society was held on the above date, and proved to be of good quality and variety. The corridor was well filled, as also was a considerable amount of space in the large conservatory. The show, as usual, was largely composed of non-competing groups and collections of flowers from various nurserymen. The number of entries in many of the competitive classes for amateurs was small, owing possibly to the fact that these are somewhat restricted. The abundance of floral colour and beauty was exceedingly bright and varied, though if anything was deficient it was elegant foliage plants, which assist so materially in producing a really tasteful effect.

The first prize for a group of Azaleas was awarded to Mr. R. Scott, gardener to Miss Foster, The Holme, Regent's Park, for well-flowered and shapely plants of George Loddiges, Madame Van der Cuyssen, Sigismund Rucker, Due de Nassau, Helen Carmichael, Stella, and others. Mr. H. Eason, gardener to B. Noakes, Esq., Hope Cottage, Highgate, was second with plants of Stella, Baron de Verie, Sigismund Rucker, Apollo, Countess de Kerchove, and Madame Van Houtte.

Mr. T. S. Ware, Hale Farm Nurseries, was the only exhibitor for a collection of hardy herbaceous plants, obtaining the first prize. Conspicuous in the group were Saxifraga Burseriana, Primula denticulata alba and cashmeriana, Hepatica triloba cœrulea, Fritillaria pudica, and Cyclamen Coum.

The first prize for a group of Cyclamen fell to Mr. T. Pestridge, Boston Park Nursery, Brentford. The plants were well grown and

thickly bloomed, large flowers being prominent on stout footstalks, while the foliage was well marbled and sturdy. For a group of Lily of the Valley in pots Mr. R. Scott was first with plants of only moderate quality. For a group of Amaryllis Mr. H. Perkins, gardener to Hon. F. D. Smith, was awarded first prize for fine spikes of Charles Penny, Countess of Arran, Lady Winifred Gore, Miss Claire Stopford, and others. Mr. Jas. Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford, was second, the spikes not being so fine as in the former instance.

Mr. Jas. Douglas was first for twelve Hyacinths in pots, his group consisting of fine spikes of Lord Derby, King of the Blues, Garibaldi, Souvenir de J. H. Veen, Czar Peter, The Sultan, Koh-i-Noor, Sir Henry Barkley, La Grandesse, and Princess Mary of Cambridge, and others. Mr. H. Eason, gardener to B. Noakes, Esq., Hope Cottage, Highgate, was second, and Mr. R. Scott third. For twelve pots of Tulips Mr. Jas. Douglas was again first with splendid plants, the flowers being large and distinct in colour. Mr. R. Scott was second with plants not nearly so good, and Mr. H. Eason third. The best collection of Crocus was staged by Mr. R. Scott, and the second prize was gained by Mr. Jas. Douglas, the latter being first for a group of Deutzias.

Miscellaneous Exhibits.—Amongst the large number of miscellaneous exhibits Messrs. John Laing & Sons, Forest Hill, staged a fine group of mixed plants, for which a small silver medal was granted. Messrs. J. Peed & Sons, Norwood, staged a collection of flowering plants of bright colour. One of the chief features of the show was the group of Orchids and other plants staged by Messrs. B. S. Williams, Upper Holloway, for which a large silver medal was recommended. Clivias also made a magnificent display in this exhibit. A small silver medal was also recommended to Messrs. Williams for a superb exhibit of floral designs.

Messrs. T. Jannoch, Dersingham, staged Lily of the Valley, the spikes of which were arranged in artistic clumps and pyramids on a ground-work of green moss. A small silver medal was recommended for this group. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, was recommended a large bronze medal for a highly creditable group of hardy bulbous plants. Messrs. Barr & Son, Covent Garden, staged a good collection of hardy bulbous flowers.

Mr. J. R. Stevens, Clayton Nurseries, Hassocks, was awarded a certificate of merit for plants and fruit of his new Strawberry Stevens' Wonder. A small but creditable group of miscellaneous plants were staged by Messrs. Jas. Veitch & Sons, Chelsea. Messrs. Paul & Son, Waltham Cross, staged Camellias in pots, Rose Duke of York, Clematis indivisa lobata, and stands of Camellia blooms, for which a large silver medal was recommended.



HARDY FRUIT GARDEN.

Protecting Fruit Blossom.—*Coping and Blinds.*—For affording adequate protection to wall trees when in blossom and during the early stages of the young fruit's development a coping either of wood or glass is most convenient, if not indispensable. In some cases and seasons the coping may be sufficient protection of itself, but the addition is almost invariably required of a light covering of tiffany, woollen netting, or double fish nets. Any of these protecting materials used must be made moveable, so that the trees can be covered or uncovered quickly.

The best method is to depend the material from the front edge of the coping, fixing it there with rings which can run on light iron rods stretching the entire length, though they will necessarily be in sections. The material is thus easily drawn on one side or pulled upwards in favourable weather to admit light and air freely, and to prevent coddling. Before the blossoms of Apricots, Peaches, and Nectarines open it is advisable to shade the trees in bright weather, thus retarding the expansion of the blooms longer than would be possible with full exposure to hot sun. This is all the more necessary when sunny mornings are succeeded by sharp cold periods and frosty nights. When frost is imminent and the trees are in bloom run the protecting material over them at sunset. Should stormy weather prevail in the daytime while the blossoms are expanded keep the protection over them. If not in bloom there is no fear of a few degrees of frost doing harm—in fact, at this time cold weather is a useful check, preventing the influence of warm walls bringing the trees prematurely into bloom.

Protecting with Poles and Nets.—In the absence of coping from which to suspend protecting material some light poles placed in front of the trees, one end resting against the top of the wall, the other firmly fixed in the ground several feet away from front of trees, will afford support for netting or other material. A double or triple thickness of fish netting forms admirable protection, and as it admits light and air freely there is no necessity to move it to and fro after once placing it over the trees until it can be dispensed with altogether. Protection need not be afforded within 2 feet of the ground in any case.

Strawberries.—Beds and quarters of these will need some attention in clearing away dead and badly discoloured foliage which has suffered from the frost. The removal of this affords space for placing

rich material as a mulching closer round the crowns, radiating from which are to be found the greater bulk of the surface roots. Assistance thus rendered to them aid materially the new growth, strengthening the flower trusses and benefiting the fruit subsequently. If used fairly fresh and strawy, spreading it over the entire space between the plants, it affords a clean resting bed for the fruit when ripe. Previously to applying the mulching, which may be done just as growth commences, it is an excellent plan to darken the soil with soot. In dry soils a dressing of chemical manure, such as nitrate of soda, at the rate of an ounce to the square yard, or 2 lbs. per rod, is very beneficial, as it accelerates the growth and proves of great advantage to the crop. Occasional applications of any of the advertised chemical manures are likewise good. The manurial mulching, however, should not be discarded, as it prevents rapid evaporation from the surface, and the virtues in the manure are gradually washed into the soil and appropriated by the roots.

Spring-planting Strawberries.—Late-rooted runners that were planted thickly in beds in the autumn on sheltered borders may now be removed and placed permanently in rows, selecting well prepared and liberally manured ground, so that growth may start freely, the plants developing strong crowns during the summer. Spring-planted Strawberries should not be allowed to flower the first year. If they do so, their energies, which ought to be directed to the production of stout crowns and foliage, are appropriated by the small trusses of flowers and fruit. The result is seen in inferior fruiting the following year, as well as a dwarf stunted growth. It is desirable that the flower trusses should show, so that it is known that the plants are of a fruiting instead of a blind character or barren. The latter ought to be uprooted at the same time as flower stems are broken from the others, because they will never do any good.

Lift each plant with as much soil as will adhere to the roots, planting in suitable sized holes so as not to cramp the loose outside fibres. Make the soil quite firm about them, and afterwards spread a light mulching of stable manure between the rows. The distance apart to plant depends on the variety, the strongest requiring 30 inches, while those of weaker habit may only require 20 to 24 inches between the rows. In order to economise space Lettuce may be sown or planted between the plants the first summer. In addition to cutting away the flower trusses detach the newly produced runners before they extend far.

Stimulating Raspberries and Currants.—As these have abundance of fibrous roots near the surface a thick mulching of manure placed on the soil over them will have its virtues speedily appropriated by the multitudinous rootlets which are attracted to it. Liquid manure applied now will descend and feed the lower roots, some of its fertilising virtues being washed and stored in the soil to be drawn upon in the future.

Planting Fruit Trees.—All kinds of young fruit trees and bushes ought to be planted as soon as possible, the ground being in good working order and becoming warmed. The operation should be carefully carried out, cutting off the bruised ends of roots and spreading out the latter in light loamy soil near the surface. Afterwards mulch lightly all newly planted specimens, and securely stake those that require it before the winds loosen their hold of the soil.

FRUIT FORCING.

Peaches and Nectarines.—*Early Forced Trees.*—When the fruits are stoning too high a temperature at night and on dull days is not favourable; cold draughts, sudden fluctuation or depression of temperature, and checks of every kind, such as deficiency of moisture at the roots and parching atmosphere, are even more injurious; therefore maintain as agreeable conditions as practicable. Continue the temperature at 60° to 65° at night and on dull days, 70° to 75° by day with gleams of sun, ventilating from 65°, freely at 70°, and not allowing an advance over 75° without full ventilation, closing at 75° but not so early as to cause the temperature to rise more than 2° or 3° afterwards. Attend to thinning the fruit, it being inadvisable to leave more than twice the number of fruits that are to be left for the crop for stoning, as it is the seed that exerts the greatest strain on the trees. One fruit to every square foot of trellis covered with foliage is ample for the large-fruited varieties, the medium-sized and Nectarines being left a little, but not much, closer. See that the successional shoots for bearing another year are properly tied to the trellis as they progress, stopping unduly vigorous at about 15 inches, or if very gross and likely to interfere with the due distribution of the sap or induce gumming, remove them altogether. If the pinching results in laterals stop them to one leaf or joint, treating sub-laterals similarly, and if extension is wanted the uppermost lateral or most promising may be trained in as a continuation. When the trees are in good order there is little necessity for stopping the growths, they being trained in their full length, allowing space for the development of the foliage in order to solidify the wood as made. Shoots, however, retained to attract the sap to the fruit should be finished after the first stopping at two or three good leaves to one leaf as growth is made.

Second Early Forced Trees.—Attend to disbudding, performing it gradually, leaving a promising shoot at the base of the present year's bearing wood, and one on a level with or beyond the fruit, this growth being pinched, unless required for extension, at the second or third good leaf. On extensions in young trees leave shoots on last year's wood at 15 inches to 18 inches distance along them, the shoot at the extremity being trained as a continuation of the primary branch, but only such

numbers as to provide main branches or subsidiary ones at 12 inches apart. Commence tying down early, as when the shoots are allowed to grow to a considerable length they cannot be brought near to the wood they proceed from without danger of breaking. Avoid overcrowding the growths, as it is fatal to fine, highly coloured fruits, and to the sound formation and thorough maturation of the wood of future crops. Thin the fruits by degrees, leaving those well exposed to light and in good place for swelling on the upper side of the bearing wood, always in sufficient quantity for the crop, with some over for contingencies. In no case is it good practice to tax the trees with superfluous fruit after it is of the size of marbles. Temperature 55° to 60° at night, 60° to 65° by day artificially, increasing to 70° or 75° with gleams of sun, but with ventilation from 65°, ventilating freely between 70° and 75°, not allowing it to rise above the latter without full ventilation.

Houses Started at the Beginning of February.—The trees are in full blossom or setting the fruits. Continue to fertilise the flowers on late trees when the pollen is ripe and the house freely ventilated, as, unless bees visit the trees, it is not wise to rely on self-fertilisation, and when the house from unfavourable external conditions must be kept close, or with a small amount of air only, practise fertilisation from about 10 A.M. to 1 P.M. After the fruit is all set recourse must be had to syringing in the morning and afternoon of fine days, occasionally only in dull weather, and always sufficiently early in the afternoon to allow the foliage and young fruit to become dry before nightfall. Attend carefully to disbudding, proceeding gradually, and commencing with the most vigorous parts, also to thinning the fruit after it is seen which takes the lead in swelling, not deferring it after the largest are the size of horse beans, removing the smallest first, but avoiding large reductions of fruit as well as of shoots at one time. Temperature 55° at night, 5° less on cold mornings, 55° to 60° by day, ventilating at 60°, freely at 65°, and fully before 70° is reached, a close atmosphere in the early stages tending to lean growths and thin foliage, should be carefully avoided, ventilating a little constantly, and increasing it early in the day.

Houses Started in March.—The blossoms are expanding, and syringing after the anthers show clear of the petals serves no useful purpose, but in dull weather causes the discolouration of the flowers and converts the pollen into paste, therefore it should cease with prominence of colour in the flowers, but damping the floors and borders on fine days to maintain a genial condition of the atmosphere. Admit air freely in mild weather, and fertilise the blossoms individually when the pollen respectively is ripe. Maintain a night temperature of 45° to 50°, 55° by day artificially with a slight increase of ventilation, and 65° by sun heat with full air. Leave a little ventilation constantly at the top of the house. Where there is a superfluity of flowers, those on the under side or at the back of the shoots may be removed expeditiously by drawing the hand down the growth. This gives the flowers left a better chance of setting the fruit.

Late Houses.—The buds are well advanced in swelling, and when the anthers show in the centres of the expanding blossoms they must be kept in safety and steady progress. Turning on the heat in the early part of the day assists the fruit in setting, advancing the temperature by 8 A.M. to 50° and keeping at that during the day but not more by artificial means, with enough ventilation to promote a circulation of air. Without such means, and during the prevalence of dull cold weather at blossoming time, necessitating closing the ventilators for safety, an atmosphere is produced that converts the pollen into paste, and the setting of the fruit is indifferent or uneffected. The borders should be properly supplied with water, giving sufficient to thoroughly moisten the soil through to the drainage. If there be the least trace of aphides fumigation must be had recourse to before the flowers expand.

Cherry House.—After the effectual fertilisation of the flowers the swelling of the Cherries proceeds rapidly, and to assist the fruit in throwing off the decayed parts of the flowers, as well as to refresh the trees and keep insects in check, syringing must be resumed once a day in dull weather and twice daily when the weather is clear, the last syringing being practised in time for the foliage to become fairly free from the water before dusk. Fire heat will only be necessary to prevent the temperature falling below 40° at night, and maintain it at 50° during the day in dull weather. Ventilate at 50°, closing at the same, regulating the ventilation according to circumstances, always having it full at 65°. If green aphides appear fumigate the house, having the foliage dry and delivering the smoke cool. Keep a sharp look out for grubs, which, if let alone, soon spoil the foliage and berries. Stopping will need attention when the shoots have made 4 to 5 inches of growth, the points then being pinched out. Extensions of growth required for furnishing the trees train in full length, removing those shoots that are not required for this purpose or forming spurs, as overcrowding is prejudicial to the current and future crops.

Figs.—**Early Forced Trees in Pots.**—The swelling of the fruits must be accelerated by top-dressings of rich material applied to the surface of the soil, and with the layers of turves placed round the rims, or by means of zinc or slate introduced inside the rims of the pots, space is afforded for top-dressings. Heavy and too rich dressings do more harm than good, a little and often being the most eligible method as regards top-dressing with either solid or chemical manures. On the other hand, dribbles of water or liquid manure do little good, but thorough supplies so as to pass through the pots are effective. A genial atmosphere, maintained by syringing twice a day when the weather is bright, is essential for the healthy growth of Fig trees, but avoid keeping the foliage constantly wet, lessening the syringing in dull periods.

Sprinkling the paths, walls, and bed two or three times a day secures a congenial atmosphere, but forcible syringings occasionally are necessary for dislodging red spider, and it must not get ahead, or it will spoil the foliage and crop. A little sulphur applied to the hot-water pipes gives off fumes that keep the pest in subjection. Admit a little air at 70°, increasing it with sun heat to 80°, not allowing an advance over 85° without full ventilation, and close at 80°, after which an advance of 5° to 10° will be beneficial than otherwise. The night temperature may still range from 60° to 65°, 55° in the morning in severe weather being safer than the higher temperature, advancing to 70° or 75° by artificial means in the daytime, except when cold and dull, when the heat should be kept at about 65°. Stop the shoots as required to about five leaves, tying the shoots as the growths advance, so as to keep the heads sufficiently open to admit light and air, preventing overcrowding by judicious disbudding.

Pines.—**Suckers.**—The rooting of the recently potted is indicated by the growth, but this must be ascertained by turning a portion out of the pots, and when the bottom heat is excessive the pots be raised, as the roots issuing from suckers or recently started plants are tender and susceptible of injury. A temperature of 85° is ample when the roots reach the sides of the pots, and above this there is danger, therefore raise the pots where the bottom heat is likely to injure the roots by placing some loose tan under and around them, so as to allow the superabundant heat to pass off without injuring the roots, yet according a temperature of 80° to 85° about the pots. Careful watering is necessary, making a close scrutiny of the soil, and then supplying it to such as need a supply at the same temperature as the bed.

When the plants from suckers or those disrooted become established they root rapidly, therefore soil should be prepared for transferring them to the fruiting size of pot, as it is important they be grown on without check by being either too dry or root-bound. Sound fibrous loam is the best material for potting, breaking it up in good sized lumps, pressing it firmly down and round the balls of the plants, watering with tepid water after potting if the soil be dry, as it only ought to be moderately, but if moist water need not be given till the soil needs a supply. Plunge the pots in a bottom heat of 90° to 95° until the roots have ramified through the fresh soil, when 85° is more suitable.

Fruiting plants, and those that are at or near the flowering stage, should have a night temperature of 65° to 70°, 75° by day, with 80° to 90° from sun heat, closing at 85°, and well damping the house at that time. Afford successional plants a bottom heat of 85°, and top heat 5° less all round than for the fruiting plants, ventilating at 80°, and closing at 85°, lightly sprinkling the plants occasionally.

Strawberries in Pots.—Until the trusses are showing it is well if the temperature does not exceed 50° by artificial means, and between that and setting 55° is safe, advancing to 65° by day with free ventilation. Abundance of light is absolutely essential until the fruits are set, but afterwards they are liable to become dried, hence they swell best in positions where the sun's rays are not strong at midday, or slight shade may be given under direct exposure for a few hours when the sun is fierce. After the fruit is set and swelling a temperature of 60° to 65° at night, 70° to 75° by day, with an advance from sun heat to 80°, 85°, or 90° is desirable, affording copious supplies of water or liquid manure until the fruit shows indications of ripening, when somewhat drier and more airy atmospheric conditions with diminished supplies of water at the roots will afford large well-swelled fruit of good flavour. Thinning the fruit must be attended to as soon as the setting is completed, removing the smallest and deformed fruit, and on no account must there be insufficient water at the roots during the swelling, but at the flowering stage undue moisture or the opposite extreme is prejudicial, suffice that the soil be kept healthfully moist. The chief object in Strawberry forcing is to secure an early and unbroken supply until those in the open ground come in, and this, where there are a number of houses started at intervals, will admit of its being done without much trouble or change of plants, whilst in others some tact will be necessary to meet the requirements. All plants should now be in position for advancement by gently forcing, or if not they should be brought under glass without further delay. Some may be advanced in houses where there is a gentle heat, and others by placing them in cool houses where they will come on gradually, in all cases examining and rectifying defective drainage, cleansing the pots and surface soil.

THE FLOWER GARDEN.

Rapid Propagation.—Owing to heavy losses among the stocks of Zonal Pelargoniums, Calceolarias, and Violas, there will of necessity be much more propagation of other kinds of plants to be done in order to make good these deficits. Verbenas, Fuchsias, Heliotropes, Ageratums, Iresines, Colcuses, and such like can be rooted and grown to a serviceable size very quickly, always provided the cuttings are forthcoming in sufficiently large quantities. The surest and quickest way of rooting young tops of any of these plants is to place them thickly in watertight pans or saucers half filled with silver sand, and kept constantly supplied with water. These pans or saucers may be set on the hot-water pipes in a forcing house. Roots will form quickly, and there will be few or no failures. Directly the cuttings are well rooted shift the pans to rather cooler quarters, and before the roots become matted together either place the plants singly in small pots or more in boxes, using a rather light compost, previously warmed, in any case. Under this treatment, the plants being kept in heat, there will be no serious check given to their growth, and the tops will soon be long enough for making into cuttings.

Tuberous Begonias.—Seeds sown this year have not germinated quite so well as usual, this being probably due in many instances to the

overheating of the hot-water pipes during the long spell of frosty weather. Directly the seedlings can be moved with the aid of a forked stick prick them out in boxes or pans of fine light soil. Keep in moist heat and shade from bright sunshine. They ought to have yet another move into other boxes or to a mild hotbed. They should not be placed in pots, as they move badly out of these. Medium sized bulbs of last year's raising will develop into fine plants by June, and if it can well be avoided these should not be divided. Larger, older bulbs, arranged somewhat thickly in boxes of rich soil in preference to pots, and placed in gentle heat, will form numerous shoots, and when these are 1 inch or rather less in height the bulbs may be split into several pieces, each with one or more sprouts attached. Coat the cut portions with silver sand, and then place all in boxes or pans of good light loamy soil. Keep in gentle heat, and when they are rooting freely transplant to other boxes or, better still, to beds of good soil over a nearly spent hotbed. In this way strong plants will be prepared for the beds in June.

Carnations and Picotees.—Seedlings raised this spring and well grown will flower far more freely than most of the plants raised from cuttings. Where disease weakens or ruins the older plants seedlings ought certainly to be grown, as they need only be expected to flower once owing to every growth developing into a flowering stem. A per-centage of seedlings will be single, but if the best strains of border varieties are sown the greater portion will be of superior quality, and some of them well worthy of preservation. A strong dry heat is fatal to a good start, the seeds germinating far more surely in a newly started vinery, or in a frame over a nearly exhausted hotbed. A little later on a cold frame will be found the best place for starting the seeds. Sow thinly in pans or boxes of fine loamy soil, cover with squares of glass, and shade heavily. When the seedlings appear transfer to cooler quarters, and not far from the glass. Pot off singly when 1½ inch high.

Pinks.—These may also be raised from seeds as easily as Carnations, and will flower strongly the following season. In this case, again, seedlings will be found more vigorous and produce finer flowers than do those otherwise propagated. Plants of choice varieties in pots may be propagated from now, young side shoots being the best for the purpose. Slip these from the old stems and root them in pans of water as advised in the case of Verbenas and such-like plants.

Gladioli.—It is a mistake to keep these too long out of the ground. When planted early in April they usually start strongly, and produce finer spikes of flower than do those planted much later. If wanted extra fine give them the benefit of a root run in good fresh loamy soil, surrounding the corms with sharp sand, and covering with 4 inches of soil. If planted in rows they should be from 12 inches to 18 inches apart, or they may be thinly grouped. A carpeting of Mignonette with Gladioli dotted thinly among this forms an effective bed. The Mignonette may be sown after the corms are planted, or be planted out of small pots a little later on. If it is decided to distribute a few Gladioli in a bed of mixed flowering and fine-foliaged plants, the former ought to be started in 5-inch pots and planted out with the rest.

Sowing Half-hardy Annuals.—Asters, Stocks and Zinnias may be sown in quantity during the first fortnight in April in gentle heat, but Marigolds ought not to be sown yet. All will germinate the most surely in gentle heat in boxes covered with glass, this precaution being specially necessary if there are mice about. Shade from bright sun, and keep the soil uniformly moist. Sunflowers may be raised in a similar manner, though the end of April is soon enough to sow the seeds. That time is also quite as early as Balsams should be sown. Zea japonica, or Japanese Maize, may well be raised in quantity, as these frequently prove very effective in mixed borders. Sow the seeds singly in 3-inch pots and place in heat.

Hardy Annuals.—Where the borders were forked over or dug early in the winter the soil ought now to be in excellent condition for seed-sowing. There are many beautiful things among hardy annuals, and properly grown most of them will flower freely till severe frosts prevail. Prepare circular patches irregularly in mixed borders, making these fine and level. Sow the seeds thinly, and cover with a little fine soil—some brought from the frame ground answering best if the ordinary soil is heavy or lumpy. The plants should never be crowded, but it is well to sow more seeds when plants are required, as losses may occur. The following may be sown now:—Alyssum, Bartonia, Calandrinia, Candytuft, Cornflower, annual Chrysanthemum, Clarkia, Convolvulus, Coreopsis, Eschscholtzia, Godetia, Helichrysum, Hibiscus, Larkspur, Linum, Malope, Mignonette, Nasturtium, Oenothera, Poppy, Sunflower, Sweet Sultan, Tropæolum, Virginian Stock, Viscaria, and Ornamental Grasses.

these need not be kept in the apiary longer than May. By that time young queens can be easily bred and fertilised in time to supersede aged ones, and with extra breeding space are the best and only means to prevent swarming in storified hives. Hives properly managed on the swarming system, where the honey season does not commence before the middle or end of June, are by far the most profitable; besides, there is no risk of a hive collapsing as a non-swarming one with a worn out queen frequently does.

Our first swarms are those on which we depend for large yields of honey of the finest quality, provided the bees issue several weeks before or at the beginning of the honey flow. In the event of the queen of a swarm relaxing in egg-laying at a time that would affect late honey gathering I depose her, and introduce a young but fertile one as early as possible. My safety cage shows at a glance whether it may be safe to release her or not. Many claims have been laid to "direct introduction," but the fact remains that the term is misleading. There is no safe method of direct introduction. The queen regnant must first be deposed, and the bees have time to realise their loss before it is safe to allow an alien queen in their midst.

FASTENING COMB FOUNDATION.

I have pleasure in informing "R. D." that where foundation is fixed with wax in a groove or between a split bar the work may be performed at any time; but where it is done by pressure it is better to postpone the fixing till near the time it is wanted. If done earlier the movement of the wood by contraction, and the absorbing of damp, causes the foundation to part from the bar or section. This causes extra labour, and if unobserved crooked combs.—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES.

REPORTS to hand from several districts complaining of the disastrous effect of the past winter all tend to show how severe the losses have been among a great number of bee-keepers. Many of them I am convinced were preventible, and were the instructions that are given in these notes weekly more closely followed, many stocks that have succumbed would now be strong and healthy. I never advise others to do what I do not practise myself. I have proof of the assertion that many colonies might have been saved, as in my own apiary not a single stock has been lost; all are strong and in good condition.

I have never before been so successful in wintering. This is the more encouraging, as I have more colonies than usual this winter, thus showing that the severe weather alone is not responsible for the many losses that have occurred. Such successful wintering is not brought about by any special method. Had my hives all ventilated floor boards I should probably have concluded that it was in their favour; but, with the exception of two, all have solid floor boards. These being loose, bottom ventilation can always be given by propping up the hive or otherwise. Neither is it owing to any particular class of hive; although mine are of the standard size, other hives are probably quite as good for wintering purposes. I prefer to have my hives and frames interchangeable, and for convenience in working and securing the greatest yield of honey with the least amount of trouble, I have found the standard frame hive to answer the purpose better than any other.

Neither do I think it is owing to any special variety of bees, as mine are now all composed of our native black or brown bee as true as it is possible to have them. I consider them better adapted for our changeable climate, being hardy, good workers, and not as liable to the swarming mania as many of the foreign breeds, and, what is of great importance, their freedom from disease. Had bee-keepers in the past been satisfied with our native bee, and reared queens only from their best stocks instead of importing foreign queens in great variety, there would have been a better class of bees for honey gathering in this country (and that is what we require them for), and much greater freedom from disease than at present.

I know other bee-keepers who are beginning to come to the same conclusion. In some parts of the country foul brood is such a terrible scourge that it is almost impossible to keep bees with any amount of pleasure or profit; fortunately it is unknown in this locality, long may it remain so.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

J. Cheal & Sons, Lowfield Nurseries, Crawley.—*Hardy Plants.*
Ellwanger & Barry, Mount Hope Nurseries, Rochester, U.S.A.—*Roses.*
Pitcher & Manda, Short Hills, New Jersey, U.S.A.—*General Plant Catalogue.*
Proctor & Rylands, Carr's Lane, Birmingham.—*Manures.*
Wriach & Sons, St. Lawrence Works, Ipswich.—*Horticultural Buildings.*

THE BEE-KEEPER

APIARIAN NOTES.

YOUNG BEES.

In hives with youthful queens young bees are fairly numerous, and are the best for early work. The wide awake bee-keeper will not tolerate queens older than those of the preceding year; but occasionally circumstances may have prevented the alternative, yet

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THIS CORPORATION has been formed for the purpose of affording greater facilities in respect of the Insurance of Nursery and Garden Glass against damage by Hail. It will meet a long-felt necessity, and will greatly benefit all owners of Glass Houses.

The enormous growth and strength to which the Nurserymen and Market Gardeners' Trade has attained, and the immense area of Glass now erected and under erection in all parts of the United Kingdom, in the opinion of the Directors, fully justify the formation of this Corporation.

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The Rate of Premium to be charged will be 10/- per cent. on 21 oz. glass (which will be 1/3 per 1000 feet, valued at 3d. per square foot; 1/0½ per 1000 feet, valued at 2½d., and 10d. per 1000 feet, valued at 2d. per square foot), and on 15 oz. glass, 15/- per cent. Special arrangements may be made for the Insurance of Glass of greater weight.

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Journal of Horticulture.

THURSDAY, MARCH 28, 1895.

DAHLIA ANALYSIS—1883-94.

THE exhibition held by the National Dahlia Society at the Crystal Palace in September last was, taking all the different sections into consideration, one of the largest the Society has yet held. The "Shows" were more numerous than at any exhibition since 1890, while there was a similar advance in the Fancies, which were more largely staged than at any recent show, with the exception of 1892. The display of Pompons was about average. Cactus and Decorative Dahlias were not exhibited in quite as large numbers as in the previous year, but as compared with the earlier records they show a very marked increase, and the same may be said of the singles.

The actual number of blooms and bunches staged at the last five shows is given in the following short table.

	1890	1891	1892	1893	1894
Shows (number of blooms) ..	934	854	879	720	894
Fancies	283	286	340	270	301
Pompons (number of bunches) ..	214	193	267	168	192
Cactus and Decorative	156	158	209	264	246
Singles	95	124	138	128	138

In the above statement the number of flowers shown in the classes set apart for three or more blooms of any one variety have not been included.

The unfavourable character of last season is indicated by the inferior records of most of the best Show Dahlias. I refer, of course, to the established varieties. For instance, Mrs. Gladstone, now for the ninth year in succession the premier flower in this section, was staged in fewer stands than at any previous exhibition. William Rawlings, Mrs. Langtry, Willie Garratt, Prince of Denmark, and T. J. Saltmarsh were also indifferently represented. There were, however, a few noteworthy exceptions. James Cocker, the oldest Dahlia in the list, for example, was more frequently to be seen than at any Crystal Palace show since that of 1887. Ethel Britton, another old favourite, also did remarkably well, being oftener staged than at any of the eleven previous exhibitions. Miss Cannell, Burgundy, and Queen of the Belgians likewise appeared in an unusual number of stands.

Turning our attention now to the newer kinds, it will be found that most of these have improved their positions since the last analysis

was issued. Of the four on the table which were distributed in 1890, Duke of Fife has lost two places, but nevertheless still occupies a very good position at No. 17; John Hickling rises from No. 22 to No. 19, Majestic from No. 34 to No. 26, and Alice Emily from No. 50 to No. 47. The year 1891 is altogether unrepresented; but four sorts bear the date of 1892, three of which were much better shown at the last exhibition than at the previous one. The first of these is that grand new white variety, John Walker, which has risen from No. 7 to the second position on the list, and last year appeared in nearly as many stands as the leading flower—Mrs. Gladstone. Next comes Arthur Ocock, which rises from No. 21 to No. 11. Then Arthur Rawlings, which now stands at No. 15, thus gaining seven places, and lastly William Powell, which has fallen from No. 15 to No. 24. No 1893 variety is to be found as yet on the table. Duchess of York, however, although only sent out last year, just manages to secure a footing at the bottom of it, having been staged six times.

Of the fifty Show Dahlias tabulated in this analysis four were introduced previous to 1875—viz., James Cocker (No. 10), Henry Walton (No. 13), Mrs. Harris (No. 35), and John Standish

(No. 37), and are consequently twenty or more years old. Four came out during the next five years, seventeen during the next five, sixteen between 1885 and 1890, while the remaining nine varieties are less than five years old.

The question arises, How do the flowers sent out in recent years compare, in regard to quality, with those previously distributed, as gauged by this analysis? If we divide the last twenty-four years into two equal parts, the average position the varieties raised during the first twelve years of this period would be entitled to occupy would be at No. 27, while those of the last twelve years would stand at No. 25. When the first thirty-six sorts are alone taken into consideration the results come out still more favourable to the "Shows" sent out during the last twelve years. These results are very encouraging, and in the interests of the numerous florists for whom the marvellous regularity of form to be found in the Show Dahlia has a peculiar fascination, it is to be hoped that the present rage for the more generally popular Cactus varieties may not cause our Dahlia experts to relax their efforts to produce new sorts worthy of being placed side by side with their predecessors.

SHOW DAHLIAS.

Position in Present Analysis.	Average Number of Times Shown.	No. of Times Shown in 1894 in True Relative Proportion to the Average.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	40.2	32	Mrs. Gladstone.....	1884	Hurst	Pale blush
2	29.0*	29	John Walker.....	1892	Walker	White
3	26.0	24	Harry Keith	1886	Keynes	Rosy purple
3	26.0	22	William Rawlings	1881	Rawlings	Crimson purple
5	25.6	20	Mrs. Langtry.....	1885	Keynes	Cream and crimson
6	25.3	24	R. T. Rawlings	1886	Rawlings	Clear yellow
7	22.7	26	Colonist	1887	Keynes	Chocolate and fawn
8	19.2	18	J. T. West	1887	Rawlings	Yellow and purple
9	18.4	14	Willie Garratt	1887	Garratt	Bright cardinal
10	18.0	24	James Cocker	1871	Keynes	Purple
11	17.0*	17	Arthur Ocock	1892	Rawlings	Reddish orange
11	17.0	23	Ethel Britton	1880	Keynes	White and purple
13	16.9	15	Henry Walton	1873	Keynes	Pale yellow and scarlet
14	16.6	15	Maud Fellowes	1889	Fellowes	Pale pink, shaded purple
15	16.0*	16	Arthur Rawlings	1892	West	Deep crimson
16	15.8	15	Mrs. W. Slack	1886	Keynes	Blush white and purple
17	14.5	14	Duke of Fife.....	1890	Keynes	Rich cardinal
17	14.5	11	Prince of Denmark	1881	Fellowes.....	Dark maroon
19	14.0	16	John Hickling	1890	Keynes	Clear bright yellow
20	13.9	13	Shirley Hibberd	1881	Rawlings	Dark crimson
21	13.8	5	T. J. Saltmarsh.....	1885	Rawlings	Yellow and chestnut
22	13.6	13	Harrison Weir	1883	Rawlings	Yellow
23	11.3	14	Miss Cannell.....	1881	Eckford	Cream and crimson
24	11.0*	11	William Powell.....	1892	West	Primrose yellow
25	10.6	4	Goldfinder	1881	Fellowes	Yellow and red
26	10.5	6	Hon. Mrs. P. Wyndham	1881	Keynes	Pale yellow and rose
26	10.5	12	Majestic.....	1890	Keynes	White, edged purple
28	10.1	6	George Rawlings	1882	Rawlings	Dark maroon
29	10.0	9	Glow-worm	1889	Turner	Bright orange scarlet
30	9.7	8	Prince Bismarck	1879	Fellowes.....	Puce
31	9.4	12	Burgundy	1877	Turner	Dark puce
32	9.3	4	Joseph Ashby	1879	Turner	Shaded orange
33	9.0	3	Clara	1879	Rawlings	Rosy peach
33	9.0	7	Mrs. D. Saunders	1888	Rawlings	Pale, edged rose
35	8.8	8	Mrs. Harris	1873	Harris	White and lilac
36	8.2	2	Crimson King	1887	Keynes	Deep crimson scarlet
37	8.0	5	John Standish	1872	Turner	Crimson
38	7.6	5	Hope	1883	Keynes	Light rosy lilac
39	7.4	7	William Keith	1888	West	Dark plum
40	7.2	2	John Henshaw	1883	Rawlings	Ruby crimson
41	7.1	8	Earl of Ravensworth	1883	Harkness	Lilac
41	7.1	6	James Vick	1881	Keynes	Purplish maroon
43	7.0	2	Mr. Harris	1881	Rawlings	Crimson scarlet
44	6.6	3	Mr. Glasscock	1886	Rawlings	Purple
44	6.6	9	Queen of the Belgians.....	1887	Rawlings	Cream and pink
46	6.4	3	Imperial.....	1883	Keynes	Purple, shaded lilac
47	6.3	8	Alice Emily	1890	Keynes	Buff yellow
48	6.2	4	Nellie Cramond	1888	Keynes	Purple, shaded cerise
48	6.2	0	Sunbeam	1881	Fellowes.....	Buff
50	6.0*	6	Duchess of York	1894	Keynes	Lemon, edged salmon pink

* New varieties, the positions of which are dependent on their records at the 1894 show only.

In the table of Fancy varieties it will be noticed that Mrs. Saunders and Rev. J. B. M. Camm, both more than twenty years old, continue to run each other very close, the former, however, still retaining a slight lead. Mrs. John Downie follows immediately on their heels, and threatens at any time to spring into the first position. There are few changes in this list since the last analysis was issued as regards the older Fancies.

Of the sorts sent out in 1890, T. W. Girdlestone has risen from No. 13 to No. 7, whereas Buffalo Bill (No. 17) has fallen two places. Comedian, an 1892 variety, has made capital progress, rising from No. 24 to No. 12, or twelve places.

Treating the Fancies in the same way as I have done the Shows, three varieties are found to be twenty or more years old, four between fifteen and twenty, five between ten and fifteen, and eight less than ten years old. The average position which those sent out in the first twelve years would occupy in the analysis would be at No. 12, while those introduced since then would stand at No. 8.

The advance made in the Cactus, as distinguished from the Decorative section, is truly surprising, when we consider the character of the flowers staged a few years ago as Cactus Dahlias compared with those now set up at the early autumn shows throughout the country. At the 1890 exhibition of the National Dahlia Society the leading sorts were Mrs. Hawkins, Empress of India, Panthea, Amphion, Juarezii, William Darvill, William Pearce, and Cochineal; whereas on the list of Cactus Dahlias recently revised by that Society, and now numbering thirty-four varieties, only one of the above finds a place—viz., our old friend Juarezii. Regarded simply as exhibition flowers, some of the new Cactuses are as nearly perfect as they possibly could be. Several of the most beautiful of these have, however, one very serious defect, their stalks are so short that the blooms become hidden in the foliage. Varieties which require considerable thinning out, which are not free-flowering, and which do not hold their flowers well above the foliage, are never likely to become generally popular or suitable for garden decoration. As examples of two choice varieties possessing in a marked degree the habit of growth to be aimed at in the raising of new varieties I may instance Matchless and Bertha Mawley.

In the following select lists the Pompons have been treated in a similar way to the Shows and Fancies in the tables. In the case of the Cactus, Decorative, and Single varieties, however, the average number of times they were staged at the last two shows

alone governs their relative positions in the lists. Those marked with an asterisk are new sorts, and the places they take dependent upon the number of times they were shown at the last exhibition only

POMPONS.—Darkness, E. F. Junker, Phoebe, Tommy Keith,* Isabel, White Aster (Guiding Star), Whisper, Favourite, Grace, Admiration, Arthur West,* G. Brinckman, Lilian,* Red Indian, Lady Blanche, Eurydice, Bacchus,* Captain Boyton,* Eva,* Mars,* and Sunshine.*

CACTUS.—Delicata, Kynerith, Juarezii, Bertha Mawley, Countess of Radnor, Lady Penzance,* Apollo,* Matchless,* Robert Cannell, Professor Baldwin, Countess of Gosford, Miss Violet Morgan,* and Kaiserin.

DECORATIVE.—St. Catherine, Duke of Clarence, Marchioness of Bute, Baron Schröder, Cannell's Favourite, Black Prince, Countess of Pembroke, Amphion, Beauty of Arundel, Harry Freeman, Josephine, Lancelot, Millie Scupham, Mrs. Hawkins, and Robert Mayher.

SINGLES.—Phyllis,* Victoria, Amos Perry, James Scobie, M.C.C.,* Gulielma, Miss Roberts, Miss Henshaw, Northern Star, Demon,* Duchess of Albany, W. C. Harvey, Cleopatra, Miss Glasscock, and Yellow Satin.

My Dahlias were not entirely killed by frost last year until the 1st of December, which is the latest date for their destruction that I have yet recorded during the eighteen years over which my observations extend. During that period the average date for their being destroyed comes out as November 3rd. In 1888 they were killed as early as the 3rd of October. Last year, owing to the cold summer, many Dahlias were not at their best during the exhibition season, but in the latter half of September and throughout October they flowered magnificently, the Single Dahlias especially. How seldom are these Singles seen in perfection, and yet, after all, they are by far the easiest to grow. Their requirements are very simple, for they will thrive in almost any soil, and need little or no manure. It is no doubt because they require so little attention, that none at all is given them. To be successful with Single Dahlias three things are necessary. 1, Only named varieties should be grown. 2, They should be firmly staked. 3, Once a week all the seed pods should be removed from the plants, for nothing checks the flowering of Single Dahlias so much as the formation of these seed pods. Thus treated they will yield such a wealth of blossom as few other plants can compete with, and at a time of year when free-flowering showy plants are much wanted.—E. M., *Berkhamsted*.

FANCY DAHLIAS.						
Position in Present Analysis.	Average Number of Times Shown.	No. of Times Shown in 1894 in True Relative Proportion to the Average.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	21.1	18	Mrs. Saunders	1872	Turner.....	Yellow and white
2	20.6	17	Rev. J. B. M. Camm	1873	Keynes	Yellow and red
3	19.7	18	Mrs. John Downie	1889	Turner.....	Orange and scarlet
4	17.6	14	Duchess of Albany	1884	Turner.....	Orange and crimson
5	16.7	14	Matthew Campbell	1889	Keynes	Buff and crimson
6	15.5	12	Frank Pearce	1886	Rawlings	Rose, striped crimson
7	11.3	12	Peacock	1877	Turner.....	Maroon and white
7	11.3	17	T. W. Girdlestone.....	1890	Keynes	Lilac and maroon
9	9.8	10	Dorothy	1888	Keynes	Fawn and maroon
10	8.8	7	Henry Eckford.....	1886	Rawlings	Yellow and red
11	8.4	11	Rebecca	1883	Keynes	Lilac and crimson
12	8.0*	8	Comedian	1892	Keynes	Orange and crimson
13	7.6	5	Chorister	1881	Keynes	Fawn and crimson
14	7.4	4	Mrs. N. Halls	1881	Rawlings	Scarlet and white
14	7.4	6	Professor Fawcett	1881	Keynes	Lilac and brown
16	7.3	4	Gaiety	1879	Keynes	Yellow, red, and white
17	7.0	6	Buffalo Bill	1890	Keynes	Buff, striped vermilion
18	6.6	2	George Barnes	1878	Keynes	Lilac and crimson
19	6.5	3	Flora Wyatt	1871	Keynes	Orange and red
19	6.5	5	Henry Glasscock	1875	Keynes	Buff and crimson

* A new variety, the position of which is dependent on its record for the 1894 show only.

GERMINATION.

MANY are now busy preparing for and sowing seeds; it is, therefore, very advisable at this season to study something about them, and the changes which they undergo during the process of germination. The first question we might ask is, What is a seed? A seed may be said to consist of three parts—an outer skin called the "testa," which envelops the young plantlet, forming a covering which protects it from injury; 2, an "embryonic plant," which consists of a primary root (the radical), a young bud (the plumule), and one or two seed leaves (the cotyledons); 3, a supply of food, which is stored in the cotyledons, or outside the plantlet, and is known in the latter case as the endosperm.

What are the changes which take place in a germinating seed? The seed when sown under suitable conditions absorbs water; this causes it to swell considerably, and the rapidity of germination may be said to depend a great deal on the quantity of water the seed absorbs; this absorption is a mechanical change. If there be sufficient heat, germination will now take place; the food material stored in the seed is in an insoluble form, consequently it cannot be of any use as such; but there is a nitrogenous ferment (diastase) in the seed, which acts on some of these insoluble compounds (*e.g.*, starch is converted into sugar) and transforms them into soluble compounds, which can be at once used by the growing plant. Many other changes take place which we as yet know but little about, but they are no doubt due to the agency of some kind of ferment. The above process is one of oxidation, carbon dioxide and heat during the process being evolved; the substances formed, if in the cotyledons, pass through the vascular bundle to the growing parts of the embryonic plant, but if it be stored outside the plantlet it becomes soluble and is absorbed by the plant as required, by cells adapted for this purpose. A certain degree of heat is necessary for the processes above named to be carried on; the most suitable temperature for the majority of seeds is from 60° to 80°.

The first noticeable change taking place in the seed is the protrusion of the radical through a minute opening in the testa, known as the micropyle. This grows downwards into the soil and becomes branched, root hairs are developed, and the plant is able to absorb water and contained salts for the purpose of nutrition; by the growth of the radical the testa is split, and the plumule grows upwards to form the future stem; sometimes the cotyledons are carried up, and they carry on the work of assimilation until the foliage leaves are developed—*e.g.*, Mustard, Cress, Tomato, and Cucumbers; in other cases the cotyledons remain in the ground and supply the plant with food till it has developed its first foliage leaves—*e.g.*, Peas and Beans. As soon as the cotyledons are exposed to sunlight and become green they commence to form food material for the plant, so the young plant is nourished in two different ways for a time.

What are the conditions necessary for germinating seeds? The seed should be obtained from a good variety, and in the majority of cases ought to be only one year old. The soil must be in a good mechanical condition and have a fine tilth, so that the young root may penetrate through its particles easily and yet be in close contact with them. Sufficient soil should be used to cover the seeds, but great care is needed that small seeds are not buried too deeply; the soil should be loose enough to allow the air free access, but not too open, to allow of excessive evaporation, or the seeds may suffer for want of water.

How may the conditions of the soil be made most suitable for germination? Clayey soil should be well worked in the autumn, and left in ridges for the action of the frost and air to pulverise it, and it is best, if farmyard manure is going to be applied, to use it in a long state at this time of the year. We should then get the soil in a fine condition, which is so suitable for the sowing of seeds. It is not advisable to ridge sandy soils because of their open character, and farmyard manure should be decomposed and only used in the spring for such soils, or much of its fertilising matters will be washed out.

Anything which will make adhesive soils more porous should be used, such as old mortar, sand, quicklime, and gritty matter generally; while light porous soils may be improved by the application of clay, marl, carbonate of lime, and organic matter. In connection with the use of farmyard manure for seeds, it should never be put too near the surface, for by its decay carbonic acid gas will be formed, which will deprive the seeds of some of their oxygen, an ingredient which germinating seeds cannot do without, and it would also, by the carbon dioxide being in the soil, act injuriously to a certain extent on the young seedlings. Great care must be taken never to work soil when it is wet; and one more point to be noticed is never to beat the surface of the seed bed with the back of the spade. If the soil wants consolidating it can

be done with a rake, for if the spade be used the soil, when dry, will crack, and a too excessive evaporation will take place.—W. DYKE.

PLANT HOSPITALS—A SUGGESTION.

IN the early stages of civilisation hospitals, as far as I have been able to ascertain, were entirely unknown. It may be that owing to the primitive mode of life which the "noble savage" followed, that sickness, except in the form of senile decay, was so rare that such institutions were not needed, or perhaps, as some stirring writers tell us, those in good health were utterly indifferent as to whether the ailing ones recovered or not. Be that as it may, there can be no denying that the march of civilisation, with its great centres of population, has created the necessity for vast buildings in which skilled doctors may bestow on suffering patients the magic blessing of their healing art.

Plant-growing under glass in this country has risen from small beginnings to gigantic proportions more rapidly than has civilisation in any quarter of the globe, and, strange as it may appear to superficial thinkers, to me it seems that plant hospitals have now become as much a necessity in well appointed gardens as hospitals for frail humanity are near all centres of population. Let us now try and find out some reason for this analogy. In each case I think it is accounted for by the unnatural and therefore unhealthy conditions to which so many human beings and plants are subjected during a great portion of their time. The one in shops, factories, mines, and busy cities; the other in dwelling rooms, public halls, and churches. Having so far attempted in my own peculiar way to draw some comparisons between plant and animal life, I must now confine my remarks to matters connected with the former, and leave the latter to the care of the modern "medicine men."

So many plants are now used for the decoration of dwelling rooms, that it is absolutely necessary to proceed on systematic lines to supply the demand. A large number of flowering and fine-foliaged plants, too, in a small state are not worth keeping after they have been used for such decorations. The supply and demand in such instances simply amounts to growing a sufficient number of the necessary size, using them for the purpose for which they were intended, then consigning them to the rubbish heap, and propagating others to succeed them. This course, however, cannot be followed with all decorative plants, as many of them are large and valuable; others are choice, of slow growth, and must be reserved to do duty on future occasions. With plants of this description, a golden rule, of course, is not to let them stay too long at a time in the dry atmosphere of dwelling rooms, but change them frequently. Still, with taking such precautions, and with the best of management in other respects, they will get into a sluggish and unhealthy condition. The usual course followed then is to place them in plant stoves or forcing houses, where they receive the treatment suitable for the general occupants of the house, and invariably take a long time to recover. This, however, is not the only evil. Another one is that their disfigurement quite spoils the appearance of a house principally filled with healthy plants. In gardens where much house decoration has to be done it is a most difficult matter to keep a good show in the glass houses, because so much is taken to the house and spoilt as soon as it has been grown into a suitable size. For this reason it is not possible to form a fair estimate of a gardener's ability by the plants growing in the houses under his charge; you must first know how much house decoration he is called on to perform.

Bearing these numerous matters in mind, I maintain that an improved state of affairs may be brought about by devoting one house entirely to the accommodation of plants in a disfigured or unhealthy state. Such cases then receive exactly the treatment they require to secure a speedy return to health and vigour, and shabby looking plants may at all times be kept out of other structures. The size of a plant hospital should of course depend on the requirements and resources of each establishment, but two things are absolutely essential to success—*viz.*, that beds be provided with abundance of bottom heat supplied by means of hot-water pipes fixed beneath plunging material, and that some system of shading be adopted which may be brought quickly into use at all seasons of the year.

Either a span-roofed or lean-to structure would answer equally well. The sides of the house might be fitted up with beds 3 or 4 feet in width, similar to a well-appointed Melon house, except that the bottom-heat pipes ought to be fixed within a foot or 9 inches of the top of the brick wall enclosing the bed. This would leave ample room for a sufficient depth of cocoa-nut fibre refuse for plunging purposes. Valves ought of course to be fixed so that the amount of bottom and top heat may at all times be regulated at will. If a good part of this bed is enclosed with glass

lights it might often answer as a propagating frame when not wanted for the accommodation of small unhealthy plants; indeed, a plant hospital once started would, in many instances, serve the purpose of a propagating house as well. There would, however, be this distinction between the two. Propagating houses are usually and preferably low and comparatively small structures, but the kind of house I am now treating of must be high enough in some part to give head room for Palms 8 or 9 feet in height, because it is such plants as these that are invaluable for decorative purposes. Yet strange though it be, it is none the less a fact that in very few gardens do suitable places exist where such plants when once unhealthy can be given the most favourable treatment to secure a speedy return to vigour. What they require is bottom heat, a brisk top heat, and plenty of atmospheric moisture, in conjunction with judicious shade. Give these conditions for six months shabby plants will make more progress than they do in a couple of years under the treatment generally accorded them.

To secure the conditions just enumerated without having the narrow bed running round the sides of the house too far from the glass, the roof of our plant hospital should be formed on a rather acute angle. Instead of the usual tile or stone floor one of gravel or clinkers broken in small pieces should be formed, as the necessary atmospheric moisture could be much more easily maintained under such conditions than when floors having a surface which favours rapid evaporation are in use, and appearances would be of very little moment in a plant hospital; the great object of it should be to enable the cultivator to bring sickly plants as speedily as possible to health again. The idea, as I have roughly sketched it out, is perhaps not unworthy of the notice of readers of the *Journal of Horticulture*.—H. DUNKIN.

MOVEABLE FEASTS.

FLORA and Pomona, whose joint feast days are celebrated by horticulturists at stated intervals under the popular cognomen of flower shows, are, as a rule, fixed long prior to the consummation of the event; fixed as irrevocably as the laws of the Medes and Persians. In the ordinary course of things the wisdom of this pre-ordination is obvious, but considering that most potent factor, the weather, which so often and so seriously mars the best laid plans, it is better to face than to ignore the shady side of the subject. There are times when this is so forcibly brought home to all concerned that the question is raised as to the wisdom of concerting with the season instead of fighting against it, and to make our flower shows moveable feasts. The possibility of doing so is more apparent than the practicability, for doubtless there are prospective complications, yet with a choice of evils it is wise to choose the least.

Exhibitors, even those whose experience is limited to a few years' observation, will readily allow that the subject is an important one. Those who are vitally interested in the welfare of the societies they represent will not deny that it is an anxious one, and to the general public, should an abnormally early or late season result in a poor display, may be traced much of that diffidence in patronising the horticultural field days, for a bad impression is harder to erase than a good one.

In the cycle of the seasons spring, summer, autumn, winter the bill of fare—the schedule—is arranged to levy the heaviest contributions characteristic of each season at a fixed date. Comprised, as exhibitions usually are, of various sections—flowers, fruits, vegetables, and plants—one section alone generally forms a central object, which if by untoward circumstances is so poorly represented as to be practically absent, results in placing that exhibition in the same position as the play of Hamlet with the Prince of Denmark missing. That such occurs at times is an accepted fact.

In looking back instances may be noted in which the leading classes of a spring show have all but resulted in blanks—seasons in which at a fixed date the flowers of spring have well-nigh faded and gone, or what is probably worse, have not arrived. So, in the summer with the Rose show, placing this important floral feast in the anomalous position of being such in name only. Autumn and winter no less illustrate the evil which may or may not be preventible. One thing is certain, whether the seasons are early or late, we must take them as they come, but it does not follow that as we are unable to bend them to our purpose, that our purpose should not bend to them and be made to stretch either way in the same elastic manner.

Whether such can be done is the present question, and a question not presented for the first time. Whether such will be done and any difficulties ensuing be made subservient to the benefits it would confer remains to be seen. It is only during abnormal conditions, of which the present year bids fair to furnish a practical example,

that we can hope for the matter to be entertained. Influences of the season are the direct controlling powers of outdoor vegetation. In some degree we are, in the glass department, independent of the weather, yet not wholly so, and there are times when all the means furnished by skill and anxiety fall provokingly short of the desired object. A severe strain is at times entailed on an exhibitor and his staff with the concurrent anxiety in watching the tardy development of certain plants, due, in best conditions, at a certain date. This feeling is intensified when the opposite extreme occurs, and the same plants are found at their best whilst the important day yet looms in the distance.

An exhibitor can, of course, derive a doubtful satisfaction from knowing his competitors are fellow sufferers; but if they can enjoy this qualified consolation it is not shared by the society, which suffers a great deal in pocket and some little in prestige. With a society sufficiently powerful to draw competitors from the two ends of the kingdom, even beyond, the same conditions do not obtain, for in this case deficiency in the North is compensated by the South, or *vice versa*. It is rather with those societies which draw their support from a circumscribed area that the weak points are felt, and being conscious of this weakness the possibility of curing it is worthy of being entertained.

With some few local societies the moveable system is practised when occasion demands, and found to work satisfactorily. These, perhaps, have not to contend with the same difficulties, the chief of which is probably the use of buildings or grounds, which can only be available at a long notice and for the time pre-ordained. Doubtless this is a problem capable of various solutions. An objection which has been advanced is that altering the date of one exhibition—say a Rose show, might clash with a similar meeting elsewhere. But this is merely a matter for mutual arrangement by the separate committees, and the reasons which affect one apply to both.

Taking the Rose show as a prominent example of the subject, it is not difficult to gauge a month previous to the date fixed on how matters are likely to stand when it comes round, and if put to the vote by the leading exhibitors a consensus of opinion and prompt action would prevent this show being held without the Roses; figuratively, of course, for though the "last Rose of summer" may be present, or the earliest specimen, and with a walk over carry off the prizes, it is highly unsatisfactory. It is indeed sad, as a lady once remarked to the writer, to see a Rose show without Roses.

There could not be any difficulty in making public such alterations as might be decided on when the necessity arises, and doubtless the public would infinitely prefer to have a good feast, though moveable, to a meagre display. Certainly exhibitors would, and the intelligence conveyed on a postcard would come as a welcome relief to many who daily, as the festival approaches, hope where no hope is, and grumble at weather which cannot be cured; at fixed rules which must be endured, when a little time either way would do so much for all concerned, for "Time, like money, is measured by our needs."—E. K., *Dublin*.

VINES AND VINERIES.

MR. TAYLOR'S article on the above subject in the *Journal of Horticulture*, page 208, opens an interesting and important question on these two heads. That Vines thrive and finish their fruit better in houses that are not too much set to the sun, there can be no doubt at all. The sun never has the same power to burn the foliage in flat-roofed houses. In such a structure the atmospheric moisture is not so quickly dried up, so that the temperature remains more uniform and humid, and is not so sensitive to the outside changes, owing to the presence of a large volume of air of a moist nature that is at all times so beneficial to the general health of the Vines.

To grow Vines successfully in the modern vinery containing large squares of wide glass with few laps and an acute angle of the roof is not so easy a matter. On such a house the sun has a scorching effect, because there is nothing to break its force, and in a short time the atmosphere becomes so dry that to preserve the necessary amount of moisture in the house there is a continual need for damping, too much of which is not advantageous.

The heat that rises in a lean-to house facing due south at midday, when the thermometer registers between 70° and 80° in the shade outside, is quite enough to destroy the best of foliage, for when all is so hot and dry, vapour, after the house has been damped, arises and condenses on the edges of the leaves, which in turn become scorched and soon afterwards crumble up, preventing healthy circulation of the sap. No amount of ventilation will prevent this to a certain degree happening. To open the ventilators widely at the top and bottom in the hope of preventing it, in a measure aggravates the evil, as the current is too strong and creates a draught which carries off the natural moisture and leaves the atmosphere of the house parched, the very opposite of what

is needed. A steady circulation of air is really necessary to the healthy development of fruit and foliage.

I have yet to learn how it is that hothouse builders come to know so much better what kind of houses are most suitable for Vine-growing than a gardener who has spent his life in his calling. Each builder has his idea and patent, but it seems useless to build a house in such a form that afterwards it is necessary to shade it to prevent the sun damaging the Vines. Surely this is short-sighted policy considering the amount of trouble connected with the operation of shading, at a time too when gardeners' hands are full enough otherwise.

With a span-roofed vinery the circumstances of the case are materially changed, the position being due north and south. Even although the angle of the house may be somewhat steep, the sun will not have the same power on the foliage although it shines directly on it in the morning, and as a natural consequence the moisture of the house is not so readily dried up, and by noon, when the sun is at its fullest, it will fall on the ridge, and be equally divided on each side. Thus there is no chance of it doing injury to the foliage, although the glass squares may be of large size. I have just touched on the outside points of this important subject, and should be glad to hear what others have to say. —A. KEMP, *Coolhurst, Horsham.*

DEATH OF MR. WILLIAM DEAN.

FLORISTS all over the kingdom, as well as secretaries and managers of horticultural societies, and our readers generally, will share with us the deep regret we feel in announcing the death of this genuine florist and estimable man. Pansies, Violas, and Pinks were perhaps the favourite flowers of Mr. William Dean, but all kinds were dear to him, and no one than he was more quick to perceive the merits and defects of the several varieties. Mr. Dean was the originator of the characteristic and expressive name of "Fancy Pansy," and to him more than

to any other man we are all indebted for the beautiful race to which the term applies. Fancy Pansies were at the first and for some time lightly regarded, but they have long since won a leading position, and are grown in increasing numbers yearly.

In 1883 Mr. Dean wrote the history of the "Fancy Pansy" in the *Journal of Horticulture*, and this, with his history of the Show Pansy, is embodied in Mr. James Simkins' (King's Norton, Birmingham) excellent work.* This work gives beautiful coloured illustrations of early Show Pansies as they were in 1833; also of Mr. Dean's beautiful "Fancies"—Mrs. Dean, Her Majesty, His Majesty, and Harlequin, as sent out by him in 1866. The difference is almost startling, and the last-named varieties show the marvellous

advance that had then been made in the Pansy since it was introduced from the cornfields into Lord Gambier's garden at Iwer in 1833-4, and improved by his Lordship's gardener—Mr. Thompson. The Pansy is emphatically the flower of evolution. Mr. Dean, always abreast of the times with the flowers of his heart, had of late given much attention to the smaller types as represented in the charming Violas, which are deservedly spreading far and wide. Our departed friend raised many of these from time to time, but the one to which his name may be more particularly and appropriately identified is Dean's True Blue—one of the most floriferous and best of bedders and the favourite of one of the truest florists of his day and generation.

Mr. William Dean had an extremely varied career, as will be admitted on perusal of the following interesting biographical notes, with which we have been favoured by his brother—Mr. Richard Dean of Ealing:—

"My brother William was born on July 8th, 1825, on the Hill Nursery of Mr. William Bridgewater Page, a noted botanist, horticulturist, and landscape gardener of Southampton. My father was foreman at this nursery for a number of years, and William was taken into the nursery when quite young as office clerk, and here he remained until 1843, when he went to Belfast as foreman to Messrs. Scott, Bros., being then just turned eighteen years of age. His youth and nationality combined appeared to have prejudiced the employer against him, and after a year or two in the north he came to London, and obtained employment in the Wellington Road Nurseries of Messrs. E. G. Henderson & Son at St. John's Wood, eventually becoming salesman and traveller. About 1850 he went into business with a Mr. Somerville, as nurserymen and florists at St. John's Wood, but abandoned it towards the end of 1853, going to Slough to take a responsible position in the Royal Nurseries under the late Mr. Charles Turner. There he remained until 1857, when he went to Shipley, Yorkshire, and established what was known as the Shipley Nursery, Bradford, doing a general nursery and seed business.

"In 1859 Mr. Andrew Henderson of the Wellington Road Nurseries sent my brother some new forms of blotched Pansies he had met with on a recent visit to France with a request that he would grow them at Shipley, a London nursery not being favourable to their well-doing, making a stipulation that all the plants obtained should be sent to

London. These Pansies had been raised by a M. Mieliez of Lille, and were all named varieties. More came to Shipley in 1860, and more in 1861, all improvements upon the preceding ones, and then the supply failed through the death of M. Mieliez. Meanwhile my brother had obtained seed, and in the autumn of 1861 he was able to send out the first batch of English-raised Belgian Pansies, as they were termed in those days. It is to my brother's enterprise we are largely indebted for the family of Fancy Pansies of the present day.

"In 1865 my brother acted as Local Secretary for Bradford and district in furtherance of the International Horticultural Exhibition and Botanical Congress of 1866, and he had the satisfaction of sending up the second largest amount obtained in that way—viz., £78 4s. He was one of the 110 jurors who made the awards at that memorable exhibition, of whom only a tithe remains alive to this day.

"In 1876-77 he sold his business at Shipley, and came to London to take charge of the London branch of the Lawson Seed Company in Southwark Street. When the London branch was given up, he went to Chad Valley, Edgbaston, Birmingham, as manager to Mr. R. H. Vertegans, and subsequently with Mr. Thomas Hewitt, and with Messrs. A. Blizzard & Co., Edge Lane Nursery, Solihull. Then some years ago he settled down in the Dolphin Road, Sparkhill, Birmingham, as florist and seedsman, making a speciality of Pansies and Violas, and was very successful as a raiser of the latter. He originated and carried out to a successful issue the Viola Congress held in the Botanical Gardens, Edgbaston, last year, and prepared the report of its proceedings for publication, and which will always stand as a memorial to his exertions in popularising the Viola. At the time of his death he was assisting Mr. H. A. Burberry in bringing out a new edition of his book on Orchids. As assistant secretary to his friend Mr. Robert Sydenham, he carried out the arrangements of the exhibitions of the Midland Counties' Carnation Society, and assisted in all the exhibitions held in the Botanical Gardens. As a judge at flower shows his services were in request, but his health would not permit of his travelling long distances.

"For years past he had been a martyr to asthma and bronchial affections, which kept him a close prisoner in his house for weeks together during winter. In a letter I had from him a few days ago he spoke very hopefully of an improvement in his health when warmer weather came, but it was destined not to be. His end (on the 23rd inst.), was somewhat sudden and unexpected; to all appearance, pneumonia having set in in an acute form. He was twice married, having a family by each wife; and he leaves a widow and children to mourn his loss."

"In the early part of 1860 he became associated with Mr. E. S. Dodwell and Mr. John Sladden (A.S.H.) in the conductorship of 'Gossip of the Garden,' and carried on the work until it ceased at the end of 1863. He was editor of the 'Florist's Guide,' which succeeded 'Gossip of the Garden,' but it did not get beyond the second year of publication."

Mr. William Dean was a most pleasant and genial man, ever ready to help any who needed his assistance in connection with floricultural matters. His quick pen and great experience rendered him a welcome guest in many a committee tent at flower shows. On such occasions few men worked harder than he, and the more he could do the happier he appeared to be. He was a careful and a just judge of flowers, and though, like most other judges, had occasionally to disappoint exhibitors who were his personal friends, he was never more pleased than when he was authorised to give awards of extra medals or commendations to meritorious productions that were equally recognised by his colleagues. He will be missed at many floral gatherings and by a host of friends who were wont to associate with him, as well as by others with whom he corresponded, for he never seemed to tire of writing about flowers to those who loved them, whether they were strangers or not. Mr. William Dean was in a sentence a real, true, genuine florist and an excellent man, whose name will be held in pleasant remembrance by a wide circle of friends who had the pleasure of his association.

We reproduce an excellent miniature portrait of our deceased friend by favour of Messrs. Dobbie & Sons, Rothesay who had it engraved for one of their publications.

EXAMINATION IN HORTICULTURE.

MANY difficulties arise over the books to study for the above examination, and as your two correspondents said (page 251), the books mentioned for gardeners' study by the Royal Horticultural Society are very expensive, but they can to a great extent be substituted for others much cheaper. Perhaps a few words about those I found most useful last year may help others who are in a difficulty in the choice of suitable books out of it.

I think the best book to commence the study of horticulture is J. Wright's "Primer of Horticulture," 1s.; afterwards R. P. Wright's "Text Book of Agriculture," 1s. 6d.; and William Oliver's "Elementary Text Book of Botany," 2s. 6d. These, with a certain amount of practical experience and a weekly paper on gardening (similar to the *Journal of Horticulture*), will be found (I speak from experience) sufficient to gain a first-class certificate. Those wishing to extend their knowledge can do so by getting the books recommended by the R.H.S., but I think the above books come within the range of all.

A plan we have started amongst ourselves, which perhaps others do, or might like to follow our example, is for six or seven to each buy one



FIG. 46.—MR. WILLIAM DEAN.

* "The Pansy: How to Grow and Show It."

good book, and then lend amongst ourselves. This plan brings us within reach of six good books at the expense of one.—W. D., *Turnford*.

ALLOW me to thank your correspondent, "W. D., *Turnford*," for his kind information given me on page 251 on the above subject. He is, however, labouring under a false impression in presuming that I thought few under the age of twenty-five gained the Society's certificates. Let me assure "W. D." that I was fully aware many young men obtained those certificates, but did not know so many under twenty-five succeeded in gaining first-class ones. Now that we are told young men have as good a chance as others of heading the successful candidate list, and have done so, it is to be hoped that many young gardeners who hitherto, like myself, were under the false impression that age and experience counted for something at those examinations, will now take courage, and by following out the advice given by "An Instructor" last week be among the chosen few when the results of the forthcoming examination are made known.—A YOUNG GARDENER.

THE ALDBOROUGH ANEMONE.

The Aldborough Anemone (fig. 47) first flowered in the late Rev. J. G. Nelson's garden at Aldborough. The bulb was sent to him by a Mr. Poö, a Greek botanist, and I well remember walking into his garden one morning and finding him admiring the first flower that had opened. The flowers vary considerably in character, some having pointed petals as in the illustration, while others are quite round. My plants are now throwing up numbers of buds, one being in flower. After a favourable winter I do not know a plant that will give so early and brilliant a display of bloom for so long a time. For quite three months it may be had in gorgeous magnificence. Bulbs should be planted in August and allowed to remain in the same borders from two to three years. No other plant should be planted among them to shade the bulbs in the summer. I devote a border in the kitchen garden to them, and plant in rows 15 inches asunder.—WM. ALLAN, *Guntton Park, Norwich*.

PLANTS WITHOUT EARTH.

COLONEL HALFORD THOMPSON of "Jadoo fibre" fame has sent us a neat pamphlet of thirty-two pages, containing the lecture which he delivered at the People's Palace for East London a short time ago. It is an excellent lecture well worth reading. The more experience the Colonel has with Jadoo the more he is convinced of its value as a light yet sufficient and continuous medium for supporting plants.

That it does support plants is evident from the prizes which have been awarded for plants grown in it, not only those of succulent growth, but Chrysanthemums. Mr. E. Molyneux describes the prize blooms as "remarkable for size, depth, and brightness." It will be admitted if Jadoo will do that it will support most other plants usually grown in gardens. The material appears to be scientifically prepared. It seems to be based on a proposition of Mr. Warrington, that "even where soil is extremely fertile the bulk serves chiefly as a sponge to hold water, and a large part of the elements of plant food in soils is in such a condition that plants are unable to make use of it."

The Colonel then goes on to say, "The object of Jadoo fibre is to provide a sponge not only to hold water but also the chemicals themselves, not locked up but stored in such a way that plants can make full use of them." This is done by boiling peat moss with chemicals which contain the requisite essentials of plant food, then fermenting the mass in a particular way to render the food available. The plants then take it as they want it, and make themselves happy. The results have surprised many persons of great experience in plant culture, including Mr. Veitch of Exeter.

In towns where soil is scarce, heavy, and dear Jadoo is sure to be extensively tried, and as Mr. Molyneux remarks, "it should prove a boon to nurserymen who grow plants for transit as well as for baskets because of its lightness." The plants we have seen exhibited as grown in this material were as healthy as could be desired. Colonel Halford Thompson's lecture can be had for 6d., and no one will be the worse for reading it, but on the contrary many of his remarks are very trite and suggestive. It is published by Messrs. Charles and Edwin Layton, 56, Farringdon Street, London, and can also, we presume, be had from the Jadoo Company, of which Mr. A. Hope is the secretary, at the address given in advertisements.

THE EXTRAORDINARY GALE.

A TERRIFIC gale of wind swept over Warwick about mid-day on Sunday the 24th inst. Scores of trees on Lord Warwick's estate were either torn up by the roots or broken clean through the trunks. Several of the grand old Cedars in the Castle grounds, whose sturdy trunks and spreading branches have weathered many a previous storm, have, alas! at last succumbed. Torn up at the roots, with enormous balls of earth attached, they now lie a mangled mass of broken limbs and branches. In their time they have been a source of delight to the many visitors who flock to Warwick Castle. In the future naught but the memory of them will be left behind. Fortunately, many thriving young Cedars

are advancing in the Castle grounds, so that in future ages they are likely to form as great a feature as their gigantic companions do now.—W.

IN rural districts great, no doubt, are the depredations caused by the recent gale. In London the experience differs somewhat. Last Sunday, whilst taking a walk, I was suddenly startled by a loud crash close behind me; turning quickly, I found it was only a stray chimney pot coming into contact with mother earth, and had I been but a few paces nearer I doubtless should have assisted in breaking the force of the blow. Feeling thankful, however, that such was not the case, I walked on with gaze chiefly centred on the surrounding roofs, fully satisfied that London streets are not the safest of places on a windy day.—COCKNEY.

ON Sunday, 24th inst., a very destructive gale swept over this neighbourhood, doing a considerable amount of damage. About midday the



FIG. 47.—THE ALDBOROUGH ANEMONE.

wind veered from south-east to south-west, and increased in violence up to 2.30 P.M., when it was blowing a hurricane, uprooting hundreds of trees, some of large dimensions, including Cedars of Lebanon, fine Oaks, Elms, very fine Larch, and Spruce Firs upwards of 80 feet high. Nothing has approached the present gale in severity since the memorable gale and snowstorm of Good Friday in 1876, when so much damage was done to the fine specimen Cedars of Lebanon in Southill Park adjoining.—G. R. ALLIS, *Old Warden Park, Biggleswade*.

A GALE of unprecedented violence was experienced in this locality on Sunday, March 24th. It commenced just before noon, and reached its full force about 1.45 P.M., when in the space of half an hour about forty large trees, mostly Elm and Lime, were uprooted in Drayton Park and thrown to the ground with such force as to splinter them to fragments. The greater part of these giants were from 90 to 100 feet high

with a girth of from 20 to 30 feet, several tons of earth adhering to their roots. No one in the neighbourhood can recollect such wholesale destruction; houses were unroofed, chimneys down, pinnacles blown off the church, and stacks overturned. The full extent of the damage is at present unknown, but it must be very serious.—C. C., *Thrapston*.



WEATHER IN LONDON.—In and around London during the past week the weather has been somewhat changeable. On Sunday last a severe gale blew over the metropolis, doing considerable damage in some districts. Cold east winds have chiefly prevailed, though on most days accompanied by bright sunshine. Rain fell heavily early on Wednesday morning, and at the time of going to press the atmosphere was dull, and drizzling rain still falling.

— **THE WEATHER IN THE NORTH.**—There has been little sunshine during the past eight days, and more or less rain has fallen daily. Saturday was very wet, and Sunday disagreeably cold and showery with a keen N.W. wind. Monday, too, was gusty, with cold showers; and Tuesday morning bright, with an inclination to frost. The higher hills are again white with snow.—B. D., *S. Perthshire*.

— **VIOLETS AND THE FROST.**—I enclose a few Marie Louise Violets for your inspection. The frames containing the plants were well covered with mats and short straw, but nevertheless the plants and soil were frozen. Great care was taken to thaw them very slowly, leaving protecting material on, and giving air at the back for about ten days. Whether this precaution paid or not may be proved by the splendid blooms we now have.—G. GREGORY, *Came*. [The blooms sent were highly creditable.]

— **CHESHIRE AGRICULTURAL AND HORTICULTURAL COLLEGE.**—At a meeting of the Agricultural School Committee of the Cheshire County Council on Monday, Mr. William Neild was appointed head gardener and instructor in horticulture at the Cheshire Agricultural and Horticultural College, Saltersford Hall, Holmes Chapel. The appointment is a tangible recognition of the ability of Mr. Neild, and the announcement will afford the highest satisfaction to his many friends in the Altrincham district.

— **MUSHROOM SPAWN.**—"Saynor" (page 234) in one of his prunings makes a reference to Mushrooms. I should like to make a pointed one, and it is this. It is not wise to purchase the cheapest spawn, as it may not be cheap in the end. For several years I bought what I termed cheap spawn, and had good results from it, but last year I procured spawn nearly double the price, and I might say with double the results achieved. One bed we started cutting from the middle of December, and now, March 14th, are still at it, and from the present appearance bids fair to last some time longer. Another point worth notice in the Mushrooms obtained from this spawn is the great amount of flesh compared with those from the previous spawn.—E. M.

— **WALLFLOWERS.**—It is so seldom that the pithy notes penned by "D." exhibit any want of comprehension, that it is a pleasure to enlighten him on a point which he admits he does not "quite understand" (page 249). The reason why I wrote of Belvoir Castle and Harbinger Wallflowers as not being dwarf, is that we have types now which are much dwarfer. "D." speaks of the true type of Belvoir Castle as being 8 inches in height, and when grown in poor firm soil I admit it is quite possible to have them as dwarf as that, but the shoots lengthen so much before flowering commences that the plants are often double that height by the time they are in full beauty. Harbinger and Blood Red have the same tendency in a greater degree, and although I have at various times obtained seeds from several different sources the results were the same; still I have hitherto regarded Belvoir Castle as the dwarfiest Wallflower in cultivation, but I am growing a variety this season which under exactly the same treatment only attains a height of from 4 to 6 inches by the time the plants are placed in the flower garden in October. Hence I do not continue to class our old favourite among the dwarf Wallflowers. The new one I hope to say more about later on.—H. D.

— **LACHENALIA NELSONI.**—Mr. Wm. Allan, Gunton Park Norwich, writes:—"I have just now a mass of bloom of the best of all the Lachenalias, the one raised and named after Mr. Nelson, and which was admirably portrayed in the *Journal of Horticulture* for March 14th, page 231. This very valuable winter and early spring-blooming plant, so far in advance of any of the old varieties, will perpetuate the name of that good and genial man who was so much beloved by all gardeners who were fortunate enough to make his acquaintance." [Magnificent examples of *L. Nelsoni* accompanied this interesting note.]

— **IMPORTATIONS OF ONIONS.**—In 1893 we paid foreigners for Onions imported into England the trifle of £783,405. Egypt sold us Onions to the value of £193,163, Spain £191,655, and Holland £132,255. These were the three largest items. The total quantity imported from all British possessions only came to the value of £2551. We bought from France to the tune of £108,724. The supply received from Germany was much smaller, amounting to £35,140. Last year the value of imported Onions dropped to £765,049. Home-grown Onions used to be a safe-paying crop with fair weather, but prices, says a contemporary, have been so forced down by foreign competition that in 1894 the growers lost heavily.

— **WEATHER AND GARDEN NOTES.**—It will perhaps be interesting to some to learn the effects of the frost on some plants in a smoky locality in Lanarkshire. Not a vestige of green can be seen upon Wallflowers; the *Primula* tribe is much injured. *Aubrietias* are healthy, even the tender sorts are not injured. This is probably due to the absence of snow, as these plants suffer when there is snow along with frost, through flakes bringing down the sulphurous acid which abounds in the district. Vegetables are spoiled, yet curiously enough Parsley is safe. The leaves of Strawberry plants are blackened, but the crowns are plump and fresh. Snow does not protect all our plants in smoky districts where there is much sulphurous acid in the atmosphere.—W. T.

— **NECESSITY OF AIR FOR THE ROOTS OF TREES.**—It is a well-known fact, that when plants are growing it is just as necessary to have air for the roots as for the leaves, and the failure to meet desired success is often as much due to compactness of the soil, thereby excluding air, as the want of proper food. Under-draining, for instance, is of more value in furnishing air to the soil than in merely getting rid of the water; because when the water goes away, air fills the places occupied by the water. When plants are not growing—that is to say, when they are in a dormant condition—air is not necessary. Plants will, says "Meehans' Monthly," live under water for weeks, in the winter time, without injury, when to be a couple of days without water when they are growing, would cause their immediate death. This lesson is of immense value to the practical cultivator—it is at the bottom of the greater part of a plant grower's success.

— **ROYAL METEOROLOGICAL SOCIETY.**—At the meeting of this Society on the 20th inst. Mr. W. N. Shaw, F.R.S., delivered a lecture on "The Motion of Clouds Considered with Reference to their Mode of Formation," which was illustrated by experiments. The question proposed for consideration was, How far the apparent motion of cloud was a satisfactory indication of the motion of the air in which the cloud is formed. The mountain cloud-cap was cited as an instance of a stationary cloud formed in air, moving sometimes with great rapidity. Ground fog, thunder clouds, and cumulus clouds were also referred to in this connection. The two causes of formation of cloud were next considered, viz., (1) the mixing of masses of air at different temperatures, and (2) the dynamical cooling of air by the reduction of its pressure without supplying heat from the outside. The two methods of formation were illustrated by experiments. A sketch of the supposed motion of air near the centre of a cyclone showed the probability of the clouds formed by the mixing of air being carried along with the air after they were formed; while when cloud is being formed by expansion, circumstances connected with the formation of drops of water on the nuclei to be found in the air, and the maintenance of the particles in a state of suspension, make it probable that the apparent motion of such a cloud is a bad indication of the motion of the air. After describing some special cases Mr. Shaw referred to the meteorological effects of the thermal disturbance which must be introduced by the condensation of water vapour, and he attributed the violent atmospheric disturbances accompanying tropical rains to this cause. The difference in the character of nuclei for the deposit of water drops was also pointed out, and illustrated by the exhibition of coloured halos formed under special conditions when the drops were sufficiently uniform in size.

— THE reader of the paper on nitrogen, &c., before the Cheshunt, Wormley, and District Horticultural Society was J. Guy, and not by J. Grey, as stated on page 249 of our last issue.

— THE Scilly flower season has now fairly set in; 1136 packages, or about 12 tons, were despatched from St. Mary's, Islands of Scilly, to Penzance a few days ago.

— CORRECTION — CALANTHES AND THEIR CULTURE. — On page 246 your correspondent, Mr. J. Friend, makes a slight mistake in his excellent article, by stating that a few weeks ago a writer was recommending us to place three good bulbs in a 5-inch pot. The advice reads as follows:—"Each piece, now consisting of two or three bulbs each, should be placed in 7 to 9-inch pots, according to size." This, I think, will fairly agree with the advice of our friend.—S. K., *Lymington*.

— VINE MILDEW. — Mons. Louis Sipièrre communicates to the French Academy of Sciences a mode of treatment more easily employed, less offensive, and more economical than the use of sulphur. M. Sipièrre avails himself of lysol by reason of its germicide properties. A solution of five parts in 1000 of water is most efficacious in destroying insects, as well as fungus spores, and is much cheaper than the Bordeaux mixture. Three applications should be made, in the course of the summer, in spring, and early summer.

— TEA CULTURE IN CEYLON. — The Tea growing industry is apparently making rapid strides forward in Ceylon. The output for the current year is estimated at nearly 94,000,000 lbs., and there is no occasion to doubt that these figures will be realised. The planters in the island are all making their fortunes, and the country generally is enjoying a condition of prosperity hitherto unknown. The change is all the more noticeable as it has come so quickly after the dreadful depression brought about by the Coffee leaf disease a few years ago.

— CLETHRA ALNIFOLIA. — Notwithstanding the large numbers of species that bloom successively, so that flowers may be had in abundance for most periods of the year, there is a time, about the end of July, midway between spring and autumn flowers, when scarcely anything is open. One of the best for this spare time is *Clethra alnifolia*. The long spikes of pure white flowers with the bright yellow anthers render it a particular ornament. It is impossible to find anything prettier at that season of the year. It has in addition a delightful fragrance. On account of the scarcity of other flowers at that period it is visited by a very great variety of insects, so that what with butterflies, bees, hornets, and other winged insects of many kinds, the flower has an additional attraction to those which its own beauty affords.—("Meehans' Monthly.")

— SCALE IN AMERICAN ORCHARDS. — The scale insects have not been very troublesome heretofore in the northern and eastern parts of the United States, but one of them has appeared in New York orchards, attacking Plums and other trees, and threatens to become a serious enemy. It may have inhabited certain orchards in small numbers for some time, but it never caused any alarm until within two years, and now it threatens the total destruction of thousands of trees. Mr. Slingerland of Cornell University has been making a study of this insect, and, although its life-history is not yet thoroughly understood, he has discovered enough to enable him to state that it can be destroyed by persistent spraying before spring growth begins. In an illustrated bulletin just issued by the Cornell Experiment Station, Mr. Slingerland explains how it can be distinguished from the San José scale, and gives directions for treating the trees with the kerosene emulsion, so as to prevent it starting in April.

— CLERODENDRON FLOWERS FALLING. — After perusing an article in the Journal of the 7th inst. on *Clerodendrons*, I venture to ask advice as to the reason of my losing so many flowers from my *Clerodendron Balfourianum*. I am an amateur exhibitor, and have three full-sized specimen plants which I can manage to grow and bloom well, but on moving them I lose the flowers. I have often wondered the cause of this, as I see other exhibitors hardly lose a single bloom. I adopt the following treatment. As soon as the plants cease blooming I keep them growing in the stove till January, then dry them off a little, and place in the greenhouse, where they remain till June. This produces favourable results as far as blooming is concerned, but although I have tried hardening them when in flower, and every other remedy I could think of, I can attain no better results, as immediately I shake or carry the plants I am left with but poor results for my labour. I have failed eight years in this, and any advice your experienced readers can tender me through your valuable weekly will be most thankfully received.—AMATEUR.

— THE GROWTH OF IVY. — The Ivy differs from ordinary plants in having rootlets on every stem, thus rendering it almost independent of its main ground-roots. Its notorious killing action upon growing trees when it takes possession of them is mainly due to absorption of their juices. If there is any moisture in stone or brick walls the Ivy will have it.

— STATUE TO MONS. GUSTAVE PLANCHON. — A statue has recently been erected at Montpellier, in the south of France, to commemorate the life and services of this distinguished botanist, to whom, after a study of the Phylloxera on American Grape Vines, was largely due the rehabilitation of the Vines of France after they had been ravaged by that insect.

— THE CULTIVATION OF TOBACCO IN FRANCE is extending, but the quality is ordinary. It is the Tobacco imports from Kentucky and Cuba that enable the various mixtures to be prepared. The Government has just authorised the Department of Lot et Garonne to plant this season 2375 acres with Tobacco, and the number of plants per acre is fixed at 12,000.

— THE FIXATION OF NITROGEN. — This is described by M. Petermann as being effected not only by leguminous plants such as Lupins and Beans, but also by Barley. The latter is attributed to the influence of rain water, which favours the development of certain low forms of vegetable life, and these, after absorbing nitrogen from the air, eventually act as fertilisers to the plant.

— FORCING STRAWBERRIES. — May I be allowed to thank "Fragaria" for his prompt and able answer (page 258) to my "ticklish question" on page 234? But there was really no intention of tickling you, "Fragaria," as a means of extracting knowledge. Yet, no matter the means if the end is gained; and if "the blade" is keen to prune, the propagation of sound information is more readily effected. Fear not "Fragaria," your practical article will bear fruit (not weighed by *avoirdupois*) to others as well as to—SAYNOR.

— CORNISH CROPS. — Cornwall, that forefoot of England thrust far out into the benign south-west, gives us the first-fruits of summer long ere they ripen under our harsher sky. But the weather appears to have been too much even for Cornwall. Mr. G. G. Boswell writes from Marazion that he has been round to all the principal market-gardening centres, and never in his experience has he seen crops killed as they are this year in Cornwall. In large fields of spring Cabbages not one has been left. Hundreds of acres of Broccoli are served the same. Tripoli Onions are cut down close to the earth, scores of acres of Parsley, Lettuce, and other garden produce being destroyed.

— THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY. — At a special meeting of the above Society on March 22nd, a paper was read on "Exhibitions, Exhibitors, and Exhibiting," by Mr. Wm. Clayton of Appleton-Roebeck. Exhibitions, he said, have now become so popular that nearly all towns and villages have their flower shows. With a description of the different classes of exhibitors Mr. Clayton passed on to exhibiting, in which he gave some good advice. When practical to do so, cut the blooms on the morning of the show, name correctly, and stage in such a position that it appears at its best advantage. If not successful try again; set your mind on improving your exhibits; cherish and support your hobby, and you will not always be disappointed.—F. L. S.

— FLORAL FASHIONS IN NEW YORK. — The custom once so much in fashion of presenting hand bouquets to ladies to carry at dancing parties is no longer observed. The discomfort attending the carrying about, through an entire evening, of an awkward armload of heavy bouquets, as well as the excess to which the fashion was carried, furnished a very good excuse for its abandonment. Hand bouquets are quite fashionable for theatre parties, however. The form which first came into general use last season, under the name of "shower bouquet" or "English spray bunch," is, says the "American Florist," the most popular, and is well adapted to its purpose, as the flowers are arranged to face all to one side, and the bunch may be laid down without injury to the flowers, as would be the case with a round bouquet. Lilacs make up beautifully in these bunches, either by themselves or in association with a few Roses. White Roses and Lily of the Valley are a favourite combination. More novel and very rich in effect are Acacia and Bridesmaid Roses. Bridesmaid, Meteor, or Testout Roses are used sometimes alone. In this case it takes about three dozen Roses to make the bunch properly. When used with Lilac or Acacia one dozen Roses will be sufficient. Bridesmaid is the most popular Rose in the market for such purposes the present season.

— **IRISH SEED POTATOES.**—Replying to a question in the House of Commons, Mr. J. Morley said: "The Seed Potatoes Supply Bill provides (as did also the similar Bill of 1890) that seeds shall not be sold for less than the net price paid by the guardians for them, inclusive of the expenses incurred for carriage, storage, and distribution. The price would, therefore, vary in different districts according to the contract price and to the expenses incurred in distribution. No seeds have yet reached Belmullet Union for distribution, but the guardians have entered into a contract for about 100 tons of Irish Champions at £5 12s. 6d. per ton, delivered in Belmullet, and for a small quantity of another kind of seeds at £6 17s. 6d. per ton: To this will have to be added the cost of storage and distribution, and it is not possible at present to say what the price charged to the people will be, but the Local Government Board do not think it will amount to anything like so high a figure as £10 a ton."

— **A NOTE.**—During a recent call on Mr. G. Clements at Haseley Manor Gardens, Warwick, I noticed that there, as in so many other gardens, the severity of the late winter has left unmistakeable marks behind. Many fine shrubs are terribly disfigured, and in some instances killed to the ground line. Fortunately, the grounds abound in choice shrubs and Coniferae, so that they will not be missed so much as in many places, and Alfred Hewlett, Esq., the generous proprietor, is such an ardent arborist that planting is carried on extensively each year, and perhaps in future times the well wooded park at Haseley will possess some of the giant trees of the district. In the houses things are growing apace under the influence of more genial weather, the conservatory being gay with a host of bulbous plants. The well-arranged fernery has been thoroughly overhauled, so as to keep some of the stronger varieties of Ferns within bounds, and thus allow the weaker ones to develop fully. In the course of a few weeks this fernery will look exceedingly well.—Z.

— **THE IRON DUKE AND HIS GARDENER.**—In an interesting reference to Walmer Castle a daily contemporary tells the following excellent story:—"No resident at Walmer has left a more lasting impression on the history of the Castle than the Duke of Wellington. He did not seem, however, to make any notable improvements in the structure, and the gardens during his residence fell into a great state of neglect, owing, it is said, to his having given the post of gardener to a veteran sergeant who had fought at Waterloo, but who knew nothing of gardening. 'Do you know anything about gardening?' asked the Duke, when the sergeant came by appointment to Apsley House in the hope of employment. The man replied that he did not. 'Then,' said the Duke, 'go and learn, and come back this day fortnight.' At the second interview the Duke said, 'Go and take the place of gardener at Walmer.' 'But,' stammered the sergeant, 'I know nothing about gardening.' 'Nor do I, nor do I,' retorted the Duke shortly, 'take your place at once.' The only subsequent record of the Duke's interest in the gardens was the planting there of a cutting of the Willow that grew by the grave of Napoleon in St. Helena."

— **A PURITAN FLOWER.**—No more beautiful flower grows in New England than the Sabbatia, and at Plymouth, where it is especially profuse and luxuriant on the borders of the ponds so characteristic of that part of Eastern Massachusetts, it is held in peculiar affection, and one may almost say reverence. It is locally called "the Rose of Plymouth," and during its brief season of bloom is sold in great numbers in the streets of the town, and used in the adornment of houses and churches. Its name, according to the "Garden and Forest," comes from that of an early botanist, Liberatus Sabbatia, but this well-established truth is totally disregarded by local tradition. Almost everyone in Plymouth firmly believes that the title is due to the fact that the Pilgrims of 1620 first saw the flower on a Sabbath day, and entranced by its masses of pinkish lilac colour, named it for the holy day. Indeed, this belief is so deeply ingrained in the Plymouth mind that, we are told, strong objections are made if any other flowers are irreverently mingled with it in church decoration. Yet the legend was invented not more than twenty-five years ago by a man whose identity is still well remembered, and thus it is of even more recent origin than the one, still more universally credited, which says that the Pilgrim fathers landed on Plymouth Rock.

— **WINTER BEDDING.**—The past severe frost has done much to emphasise the advantage of the employment of small shrubs for the winter and spring decoration of the flower beds. "H. D." (page 225) gives a pitiable experience of the death by frost of hosts of plants usually employed as spring bedders. In this part (Hants) it is the same. Even Wallflowers are killed outright. I never saw the common

Daisies and Plantain amongst the grass so brown. Beds filled in the autumn with small shrubs, like Cupressus Lawsoniana, Cryptomeria elegans, Thuja Lobbi, Thujopsis borealis, Retinosporas of sorts, Aucubas, common Laurels, Box, Ivy, Heaths, and Euonymus radicans variegata, are now looking quite fresh, while on the other hand the beds of ordinary spring plants are in a sorry plight. The best of them have more gaps than plants. There is something cheerful about these shrub beds, even in the depth of winter, that renders them pleasing. The point to study in achieving a good effect is to have a sufficient number of well grown, bushy plants, and arrange them somewhat thickly, but not so closely together that each loses its individuality. A stock is easily obtained by rooting a number of cuttings of each annually for a time. The summer treatment is not very difficult either. Those who have not given the plan a trial should lose no time in doing so.—E. M.

— **ROYAL BOTANIC GARDENS, REGENT'S PARK.**—Special interest attached to the meeting of the Fellows of the Royal Botanic Society held on Saturday last, from the fact that notice of motion had been given with regard to the important question of opening the gardens to the public. Mr. G. W. Bell occupied the chair, and Mr. J. S. Rubinstein moved "That this meeting recommends the Council to issue a circular letter to all the Fellows, in order to ascertain whether they approve or disapprove of opening the gardens to the public by payment on two or more off days in the week." He pointed out that it was absolutely necessary to find some new source of income, and he was surprised that the Council had not deemed it expedient to act upon the previous suggestion he had made in that direction. The Chairman then said that the question raised would receive full and careful consideration, and if it were found possible to carry out the recommendation it would no doubt be done. By some, however, it was thought such a scheme would not raise the Society's income by as much as £10; but if the Council came to the conclusion that the innovation proposed would increase the funds, it would certainly be tried.

— **WOOLTON GARDENERS' MUTUAL IMPROVEMENT SOCIETY.**—On Thursday evening the last meeting of the session was held in the Mechanics' Institute. Mr. H. Middlehurst presided over a crowded attendance, the subject for the evening's discussion being a prize essay, the prize kindly given by Mr. H. Middlehurst, on "Hardy Bulbous Plants Other than Spring Bedding Varieties," and which was won by Mr. G. H. Webster. The essay was of much merit and listened to with great attention. At nearly every meeting members bring exhibits of choice plants, fruits, and vegetables for instruction to younger members, and at this the Committee unanimously granted a certificate of merit to Mr. R. Todd, gardener to Holbrook Gaskell, Esq., Woolton Wood, for a well flowered specimen of Coelogyne cristata Lemoniana, with about 250 flowers, several of the spikes bearing eight flowers each. The usual votes closed the meeting. In conclusion I should like to add that the present season's work has been equal to any of the former ones. The members work really for mutual improvement, and many good lessons are taught. The library, which is one of the best of its kind in the country, is freely used and much appreciated.—R. P. R.

— **YUNNAN PLANTS.**—An old Chinese correspondent of Kew, Mr. W. Hancock, F.L.S., to whom it is indebted for several small collections of dried Chinese plants, has sent a further collection, comprising about 150 species of flowering plants and 120 Ferns. The specimens are admirable, and often copious. These plants were collected in the neighbourhood of Mongtze, or "Mengtsz," as Mr. Hancock writes it. This place is situated in South-eastern Yunnan, just within the tropics; and although the plants were not collected at great elevations (4000 to 6500 feet) they were all of a temperate or sub-tropical type. Like other parts of the vast province of Yunnan, this appears to be exceedingly rich in local species, and there can be no doubt from a cursory examination of the collection that it contains a considerable sprinkling of undescribed kinds. There are probably at least ten new Ferns, a large number considering the wide range of Ferns generally. Among flowering plants a species of Jasminum, allied to J. nudiflorum, is perhaps the most conspicuous. It has primrose-yellow flowers with broad overlapping petals of great substance, and they are from 1½ inch to 1¾ inch in diameter. There is also a remarkable new species of Brandisia, with long terminal racemes of "rich red" flowers. A Rhododendron having very large solitary or geminate white flowers is probably new, and several elegant Cyrtandreae are different from anything Kew previously possessed. The very large and distinct Rosa gigantea (Collett) is also among the plants collected. Some of the most striking novelties will be figured in an early part of "Hooker's Icones Plantarum."—"Kew Bulletin."



BRASSIA LAWRENCEANA.

WHEN this Orchid was exhibited at the Drill Hall at one of last year's meetings it was accorded a first-class certificate by the Orchid Committee of the Royal Horticultural Society. It was staged in splendid condition by R. I. Measures, Esq., Camberwell, and well

CATTLEYAS "GOING BACK"—DENDROBIUMS.

PLEASE inform me if Cattleyas and other Orchids in bud when removed from one place to another always go back, or does it indicate that they are removed to an unsuitable place? I have purchased several in bud, but the buds always die, unless they are showing colour. I shall also be glad to know the difference between *D. nobile nobilium* and *D. nobile Sanderianum*, and which is the better of the two.—W. S.

[Certainly not, unless the plants were checked by cold, or the buds bruised on the journey. If this was not so either your house must be unsuitable or the plants have been wrongly treated in some way since. If the plants were removed during the recent severe weather they would doubtless be checked, unless extraordinary



FIG. 48.—BRASSIA LAWRENCEANA.

merited the honour accorded. In Williams' "Orchid Grower's Manual" *B. Lawrenceana* (fig. 48) is described as a handsome species, having long racemes of very fragrant flowers, in which the petals are much shorter than the sepals, which are fully 3 inches long, the lip oblong-lanceolate acuminate and wavy, with two pubescent connate lamellæ truncate in front. The colour of these flowers is bright yellow, tinged with green at the base and spotted with reddish brown. They last three or four weeks in good condition if kept dry.

CYPRIPEDIUM INSIGNE.

I AM enclosing a few *Cypripedium insigne* blooms that have been open since the third week in December. During that time they have done turns for decorations in drawing-room. This is the longest time I have known blooms keep fresh.—W. G. G., *Sennowe*.

[The blooms reached us in wonderful condition considering their age, and it would be interesting to know if any readers have kept them a longer time.]

precautions were taken to prevent this, and you will know whether or not this was the case.

With regard to the *Dendrobiums* mentioned it would be hard to say which is the better, as both are truly magnificent forms. *D. nobile nobilium* is the larger flower, but *D. n. Sanderianum* has the broadest petals, and these are usually white at the base, giving them a very distinct appearance. Both forms are very deeply coloured, the former being the more rose.]

CALANTHE CULTURE.

CALANTHE VEITCHI and its allied varieties are generally acknowledged to be exceedingly decorative, and for early winter blooming few plants can equal them. The flower spikes keep a long time when the plants are placed in vases in a living room, the flowers being equally good as cut blooms.

When left in the hothouses they continue to bloom from three to four months, and no plants are so easy to cultivate where a

little heat is at command. For this reason they should be more extensively grown by amateurs. Where they do not succeed the failure is to be attributed to growing the plants in an unsuitable atmosphere, or using a wrong compost. *Calanthes* require a minimum temperature of 65° to 70°.

The plants like abundance of water when growing vigorously, an open compost, a light position not far from the glass, a little bottom heat in their earlier stages of growth, and a gradual ripening off process, which ends in a state of perfect rest. As soon as the plants have finished flowering water should be withheld, the pots turned on their sides, and placed anywhere out of sight in the stove, where they can remain till the pseudo-bulbs have begun to throw out young shoots, which is a sure indication that it is time to recommence operations.

We then shake out all the old soil, dividing the bulbs, and about the end of March we repot them, using 6, 7, and 8-inch pots, which should be clean and dry, but not quite so heavily crocked as for some Orchids. They must be filled nearly to the rim with soil, and the bulbs pressed down to the depth of from 1 to 2 inches, making the soil moderately firm round each bulb. The compost should consist of two parts fibrous loam broken in pieces, one part leaf soil, one part good peat, together with some rough sand and broken charcoal, thoroughly mixed together by the hands. When potted the most suitable place to stand the plants is on a bed or a light airy shelf near to the glass in the stove. Too much water must not be given directly after potting, as the bulbs have no live roots at first, and only just sufficient water is required to keep the compost moist, and it ought to be given through a fine rose in a very careful manner. As the plants dislike cold water either at the roots or on the foliage, it ought to be at about the same temperature as the atmosphere of the house.

Slight shading must be provided from the strong rays of the sun, and air should be admitted on all favourable occasions. By following the above conditions, and with ordinary care, they will grow very freely, and produce fine spikes of bloom. Some we had here during the last winter had flower spikes which measured from 3 to 4 feet, and contained between forty and fifty flowers on a spike.—A. SHUTTLEWORTH, *Bolton*.

THE FUNCTIONS OF ROOT, LEAF, AND BUD.

HAVING (page 203) dealt as concisely as possible with the functions of roots and leaves, I now direct attention to the nature and functions of those important organs

THE BUDS.

These organs are intimately connected with the leaves. The leaves nourish them, also give them their form and character, and from the buds the leaves reproduce themselves. Let us take an illustration from the insect world. The leaves are like the caterpillar that feeds until it is perfectly developed; it then forms itself a case, and enters into the pupa or resting state, from whence it emerges a perfect, and perhaps a gorgeous insect. The leaves are the feeding stage, the buds the pupa stage, and the blossom and leaves represent the perfect butterfly.

The buds are indeed wonderful organs, wonderful in their construction and development, in their diversity of form, and in their important object—the perpetuation of the life and the multiplication of the species or variety to which they belong. They possess the property of maintaining their vitality unimpaired, and their tissues comparatively unchanged for a considerable time during periods unfavourable for active growth. The whole process of perfecting and ripening the bud appears to be a preparation for a season of rest. It is a law of Nature that all the created world should be subject to periodical changes. Night and day, winter and summer, cold and heat, light and darkness, follow each other in ever changing relation, certain only in the certainty of variability, yet ever constant in the harmonious adaptability of all organic life to the varied surroundings of a natural state of existence.

In our own country the growing season is during summer, this being followed by a season of torpidity, brought about by the low temperature winter brings with it. In some southern countries the season of rest in vegetation is during a period of extreme heat and drought, and may arise primarily from absence of moisture in the soil and air, but in all the preparation is attained in a similar manner. During the height of the growing season food has been stored up in the tissue of the plant, and before its close abundance of this in the form of starch fills the cells in the immediate neighbourhood of the fruit buds; besides, a quantity has been used up to form the embryo leaves and blossoms, which are the chief characteristic of these buds. As the temperature becomes lower the functions of the leaves are less actively carried on, and ultimately cease. The fibreless cells at the base of the leaves become ruptured, and the leaves drop to the ground, there to decay and return their elements to the soil to feed another year's growth. About the same time the root feeders having completed their work for the season they too decay, and the whole plant enters on its season of rest or torpidity, and so remains virtually unchanged until the time arrives when suitable conditions again exist for it to recommence active growth.

I will now draw attention to a few examples of vegetable buds. They will admirably enforce the lesson of Providence—looking forward,

and providing for the day yet to come, but a long way off. This lesson it is important for every gardener to learn and act upon, and without which he can never thoroughly succeed. The first bud to be noted is called a "bulb," say that of a *Hyacinth*. The plant probably shed its leaves and roots about July—more than six months ago. The bulb is in sound condition, and I question if it has very much changed since the day the ripening process was completed. If we take a sharp knife and divide it vertically through the centre, we find the bloom spike in an undeveloped state, but perfect in the number and position of all its parts. All the cultural skill of all the gardeners in England cannot add one single bell more to that spike between now and the time of its perfect development. The result—at least, the limit of its perfection—was unalterably decided while still growing in those well-watered, well-fertilised, sandy beds of Holland; and not only was the embryo flower spike and leaves formed, but a sufficiency of food was stored around them to carry them through to the period of perfect development of new leaves and roots.

We will next for a moment consider the branches of Pear trees. We may observe three kinds of buds—no, that is wrong, there is only one kind; but they are in three different stages of development. These fat, scale-covered buds are fruit buds, perfect buds. Those higher up on last season's shoot are only partially developed buds, and may either develop into fruit buds or wood buds, but in any case they possess within themselves the characteristic properties of their own particular variety, and are capable of communicating these to a distinct individual life, as in the process of budding or grafting. A seed may, and often does, produce a tree differing widely from its parent; but it is very rare for a tree, or plant produced from a bud, to differ from its parent, even when united to a stock of a very different nature, and is fed by sap taken up by roots belonging to that different stock. How is this? Because that bud had within itself its own characteristic embryo life, and food of its own to start with—food elaborated or manufactured by its own particular leaves according to its own specific wants.

This explains many phenomena not otherwise explicable. We may bud or graft half a dozen sorts of Apples or Pears on one stock differing from all the buds, and of each sort will come true to its kind, having the characteristic shape, time of ripening, colour, and flavour of its own. Again, we may work a Peach on a Cherry, a Plum on an Apple, or a Pear on a Thorn, and all these produce their fruit unchanged, showing that the roots have little or no effect on the variety of fruit for the growth of which they supply the sap.

I have drawn attention to the food stored around the buds before the leaves fall in autumn. Let us consider for a moment the object of this. The buds are mostly situated high up in the tree, at least the fruit buds are; the roots are down in the soil. As the days lengthen in spring, and the sun gains power, the temperature of the air increases faster than that of the soil, and the buds feel the influence of the sun's increased heat before it reaches the roots. It is therefore but natural that the buds should commence growing first. They do begin first, and now we see the reason why the food, in the form of starch, was stored in the buds before the leaves fell in autumn—namely, that there should be something for nourishing the growth until the roots could become active again.

The warm spring showers come and soften the gummy covering of the buds; the heat of the atmosphere expands the water ever present in all vegetable tissues to nearly half of the whole bulk; the buds gradually open and let in the carbonic acid gas, which, acting on the starch, converts it into matter suitable for building up the cellular tissues of the leaves; the leaves and the blossoms begin rapidly to develop, and feed on the store of food at hand. They commence their proper functions and communicate vitality to all parts of the tree, lastly to the roots, and by this time the soil has become warm, and nitrification is going on. They reproduce their feeding hairs, and these fulfil their proper functions in taking up nourishment from the soil.

If it were necessary for me to attempt to prove that growth begins in the bud before it does in the root, I could point out many examples. There are also many exceptions. Look at yonder tree; it was cut down last autumn; it has lain there all winter. In the proper season it will expand the buds and develop its leaves, and even make shoots; but having no roots they will soon wither and die. You insert a Vine eye or a cutting; they will each make several leaves before any roots are produced. Notice your Vines start in spring, particularly those forced by artificial heat; they will break, produce several leaves, and even the bunch may be seen; presently growth seems to cease, the leaves appear thin and ill nourished, the shoots become spindly, and in this state they remain without perceptible progress for days, or even weeks. You wonder what is wrong with them, and begin to fear for your crop; but presently they make a fresh start, and your hope rises with the sap, which has at last come up from the roots, to supplement that food which had been exhausted before the roots were ready to provide a supply. And why were these roots behindhand in their work? Probably the soil in which they were embedded was cold and damp—a most fertile source of mischief—the chief cause of shanking and half the other ills that vegetation is heir to.

I have been trying to explain to you some sort of theory of plant life, and have tried to deduce from it, observations to account for, and prove the motive of our practice; and even if my theory is wrong, that does not prove that the practice on which it is founded is wrong, but rather that I have misunderstood and misinterpreted the means by which certain results have been attained by that practice.

The theory is shortly this: In the decay of natural organic matter—vegetable and animal organisms—the simple elements of which these

bodies are composed are set free; that these elements are again reconstructed into other compounds soluble in water, and in that form are taken up by the roots; that these changes of matter in the soil are promoted by the presence of atmospheric air and heat; that the roots take up these compounds held in solution in the water, and by means of the stem and branches they are conveyed up to the leaves, where by the action of carbonic acid and heat they are once again decomposed, and reconstructed into the forms we see them, as wood, leaves, buds, and fruit; that it is in the leaves alone which determines the specific character of the matter passing through them; that the bud is the storehouse of that characterised matter, the transmitter of unchangeable vitality from one generation of leaves to another, and the starting point of a new life.

Now we come to the practical application of all this. First, we should ever be on the alert to improve our soil by working it, draining or liming it as its nature may require, to bring it into a sweet open condition, so that the atmospheric air and sun heat may freely enter, and nitrification be thus promoted, for there will be various other processes in which oxygen is entering into chemical combination with other elements required in the sap, promoted also. Manure abundantly yet judiciously with artificial manures as specially required, but do not forget that animal manures with decayed vegetable matter, such as we find in farmyards, is Nature's own fertiliser, her richest and her best. Secondly, do not forget the most important time to feed—when the fruit is swelling, when the leaves are healthy and green, under the direct influence of the sun; when the soil is warm and the millions of gaping mouths of the rootlets are ready to take up all you can give them. Then is the time for your rich liquid manure to help to swell the Pears and other fruit growing on warm sunny borders and in forcing houses; while the application of such food at any other time, especially in the winter after the leaves have fallen, is wasteful if not dangerous, for there are no root feeders then to take it up, and thus not only is a great proportion of the manure wasted but the soil is soddened, the temperature lowered, and an unhealthy state engendered without any redeeming advantage.

In conclusion, while I know that all I have said that is true and orthodox, has been better explained before, and if anything is conceived to be erroneous, and leads to closer attention and research for the discovery of errors, the result will be what is so desirable for us all—more knowledge. There is much for all to learn if we would reach perfection in our craft. To our young men I would say, Press on, seek for truth, and "Falter not, but, onwards, upwards, till the goal you win."—H. ELLIOTT.

PRESENTATION TO MR. W. G. HEAD.

WE have pleasure in stating that, for the purpose of presenting a testimonial to Mr. W. G. Head, the able Superintendent of the Crystal Palace gardens, a party of enthusiastic horticulturists met at a social dinner held in the Restaurant at Victoria Station, W.C., on Friday evening last. Sixteen friends sat down, and in the unavoidable absence of Mr. W. Marshall the chair was taken by Mr. Richard Dean, who, it is needless to say, fulfilled his duties in a highly creditable manner. After an excellent repast had been disposed of the Chairman read letters from several gentlemen regretting their inability to attend.

The usual toast for Her Majesty having been given, Mr. Dean proposed the one of the evening, that of Mr. Head, and in the course of his remarks said they had invited Mr. Head to join them that evening and accept the small tribute, which took the form of a purse of sovereigns, as a mark of their esteem and regard. They were thoroughly satisfied that he highly deserved it, and it was with the knowledge of the good he had done in the world of horticulture that a small number of friends had amalgamated their efforts and got up the testimonial, which they hoped Mr. Head would receive with the hearty good wishes of all concerned. As a manager of flower shows, all who were in the habit of visiting those held at the Crystal Palace could vouch for his ability, and also for the efficient manner in which he carried out the many duties connected with his responsible charge at the Crystal Palace.

In hastily glancing at the record of a life of usefulness he said that Mr. Head was the son of a small nurseryman, and appeared to have imbibed the parental taste for gardening, as in 1853 he went to Arundel Castle under Mr. McEwen, who afterwards became Superintendent of the Royal Horticultural Society's Gardens at Chiswick. In 1856 he went to Shrubland Park, Ipswich, and in the following year to Drumlanrig, N.B., under Mr. McIntosh, where he remained four years. He then became gardener at Castle Dykes, Dumfries, but on account of failing health returned to the south of England in 1863. After again returning to Arundel Castle as foreman he, in 1857, became one of the staff at Chiswick, and on leaving there took charge of the flower and general decorative department at Kew.

In 1872 he was sent out to Calcutta, and while there formed a new garden and nursery for the Agri-Horticultural Society of India. He remained six years, returning to England in 1878, and soon after succeeded Mr. G. Thompson as Superintendent of the grounds and gardens at the Crystal Palace. In closing his remarks the Chairman said that Mr. Head for his ability as a gardener and kindly disposition as a man, was held in high esteem by all who knew him, and it was with the knowledge of this that had prompted them to make this testimonial.

Several others present also spoke in praise of Mr. Head, who in reply said that he was extremely proud that he had so many friends about him, to whom he wished to express his heartfelt thanks for their great kindness. He felt highly honoured by the friendship of all who had exercised their generosity on his behalf, and he trusted that the same good fellowship would stand for many years to come.

Several other toasts having been given, such as "Horticulture," the "Press," and "Gardeners of England," the health of the Chairman was drunk, coupled with a hearty vote of thanks for the able manner in which he had performed the duties of the chair. Mr. Dean replied briefly, and the company dispersed, a most enjoyable evening having been spent.



EARLY FLOWERING BORDER CHRYSANTHEMUMS.

Now that more attention is being paid to improvement in the colour of early flowering Chrysanthemums, we get a much better display in the open border than hitherto. Not only do the plants make that part of the garden gay, but they provide so much material for decorating, when hardy flowers are not numerous, with the exception of Michaelmas Daisies. These charming varieties then come in at a time when most useful, and if the improvement in colour continues I predict a long run of popularity for this section.

Let it be understood, though, that I do not allude to those, for instance, which open their flowers during August, I mean particularly such as bloom during September and October, provided, of course, frost does not injure the flowers prior to the latter date.

Below I give a select list of varieties that I know from experience are suitable for the object in view, I having proved the bulk of them personally, and with such satisfactory results, that I have no hesitation whatever in recommending them to others as producers of blooms in quantity, and with but a minimum of labour expended in culture.

The cuttings should be inserted either singly in small pots or three in a 3-inch pot. By growing the plants as near to the glass as possible in a cool house or frame they keep stocky. Pots 5 inches in diameter provide ample space for the roots until the plants can safely be put in the open ground where they are to flower. All that is necessary in the matter of attention after they are planted is to place a stout stake to each, for the support of its branches, which require no manipulating whatever in the matter of pinching. I find it is better to allow the plants to make free and uninterrupted growth from the time the cuttings are rooted to the flowering period. If the branches are not kept neatly tied to the stake but allowed to hang loosely, they are not only broken but grow crooked, which renders them unsuitable for vase decoration. Chrysanthemums, of this class especially, make a much better display when cut with long stems and clusters of flowers than do short-stemmed single blooms.

To Ryecroft Glory must be given the pride of place, as without any pinching whatever single plants will grow in one season from 3 to 4 feet high and nearly 3 feet in diameter, each carrying 200 blooms and unopened buds. The colour of the reflexed flowers is yellow, heavily suffused with bronze. Comtesse Foucher de Cariel is, out of doors, what Source d'Or is under glass—one of the best of bronze-coloured Chrysanthemums; it grows 3 feet high and 2 feet in diameter, and is a profuse flowering variety. Mrs. Gifford is a Japanese of rather tall growth; with me it grows over 4 feet high. The silvery pink blossoms are freely borne on long stalks, rendering it most useful for filling tall vases. The centre of the flower is deeply flushed with rose, which shades to silvery pink as the florets develop.

Montague.—This belongs to the true Japanese section, and flowers most profusely in the open. The colour is rich purple-crimson when the flowers are opened under glass, but a trifle less brilliant when expanded out of doors. The peduncles in this case are both erect and stiff, rendering it very useful. In height it grows 4 feet. General Hawkes is one of the best of the bright-coloured section of early flowering varieties. The rich crimson-claret petals are reversed with silver; as they are long and inclined to droop this trait adds to its character.

Roi des Précoces is perhaps the finest of all the dark-coloured varieties flowering in the open, not only for its profusion, but for the time the blooms last in good condition. The habit of growth, too, is all that could be desired. Harvest Home is one of Mr. Owen's latest introductions in this section. The narrow crimson petals are tipped with gold at the point, which renders it a striking object, growing 3 feet high. Crimson Queen is a fitting companion to Roi des Précoces in point of colour, being more a velvety crimson perhaps. It is a showy and desirable variety growing but 2 feet high. California has larger blooms than the majority of ordinary early flowering kinds. The ground colour, crimson, is heavily suffused with orange-yellow. From 3 to 4 feet it grows.

Carrie Denny is an incurved Japanese variety. The ground colour (orange amber) is flushed with crimson on the surface, but paler on the reverse of the florets; 3 feet. October Yellow reminds one very

much of Peter the Great both in colour and shape of its blooms, but smaller of course. Rose Queen in colour is a pleasing shade of rose. It belongs to the reflexed section, giving flowers in quantity, growing but 3 feet high. M. Gustave Grunerwald reminds one very much of Vivand Morel as the flowers develop in the open. The colour is a bright lilac pink, fading to almost white with age. Hardly ever does it grow beyond 3 feet; seldom so high.

Maria is distinctly Japanese in type. It was raised by Mr. Piercy, and grows from 3 feet to 4 feet in height. The blooms, although not large, are of a pleasing shade of mauve. Arthur Crepey is perhaps the finest yellow-flowered variety in the whole section; the flowers are borne on stout footstalks, the colour being primrose-yellow, fading to white round the edges. Lady Fitzwygram flowers most profusely all through September, and nearly the whole of October. I know of no Chrysanthemum that gives blooms in greater profusion than this, and being a white variety it is especially valuable. The opening flowers have a tinge of cream in them as they expand; this passes off to a pure white with age; 2½ feet to 3 feet. Madame Eulalie Morel does not grow more than a yard high; the habit is erect, the blooms about 4 inches in diameter, of the true Japanese type, opening in September, cerise in colour, with golden reverse. A very pretty and desirable kind for the border.

Vicomtesse d'Avene commences to open its blossoms in August, and continues until the end of September. The habit is dwarf and stout, the blooms somewhat incurved and of a pink lilac shade. Florrie Parsons is one of Mr. Piercy's raising, and belongs to the reflexed Pompon class; the colour is mauve, fading to lilac with age. Blushing Bride, growing 2 feet high, and of a pinkish lilac colour, completes a varied, useful, and extensive collection. The list may be rather a long one, but I recognise the merits of this section, and therefore give such a selection as to provide for the wants of all classes of cultivators. No mention has been made of the Desgrange family, which is too well known to need comment.—E. MOLYNEUX.

ROYAL HORTICULTURAL SOCIETY.

MARCH 26TH.

THE second March meeting did not bring such an extensive display as was apparently generally expected, the fruit and vegetable department being the most limited. Orchids were shown in excellent form and very large numbers, while the floral section was fairly represented.

FRUIT COMMITTEE.—Present: Philip Crowley, Esq. (in the chair); with the Rev. W. Wilks, Messrs. T. Francis Rivers, H. J. Pearson, G. W. Cummins, Jos. Cheal, G. T. Miles, J. A. Laing, W. Bates, W. Farr, T. Glen, Jas. Hudson, Geo. Wythes, F. Q. Lane, H. Balderson, J. Smith, W. H. Divers, and J. Willard.

The business of the Fruit Committee was very limited, and only occupied a short time. Mr. G. Wythes, gardener to Earl Percy, Syon House, Northumberland, showed a bunch of Asparagus from permanent beds forced annually with leaves. The stalks were very good, and the cultural commendation was well merited. Mr. Wythes also staged a box of Fig St. John, and received a vote of thanks. Mr. Balderson, Hemel Hempstead, staged three Onions, two Ailsa Craig and one Rousham Park Hero, all of which had been frozen, the last-named being quite sound and the former rotten (vote of thanks). Mr. P. Davidson, Iwerne Minster House, Blandford, showed a dish of Tomato Veitch's Perfection, and received a vote of thanks.

FLORAL COMMITTEE.—Present: John Fraser, Esq. (in the chair); with Messrs. Chas. T. Druery, H. B. May, H. Herbst, Geo. Nicholson, George Stevens, C. J. Salter, R. B. Lowe, Charles Jeffries, J. D. Pawle, Chas. E. Pearson, W. Briscoe-Ironside, Chas. E. Shea, Chas. Blick, James Walker, G. H. Engleheart, and W. Selfe Leonard.

Camellias in pots and stands of cut flowers were exhibited by Messrs. Wm. Paul & Son, Waltham Cross, Herts, the group comprising well bloomed plants of C. M. Hovey, Corallina, L'Avenir, Ninfa Egeria, Princess Charlotte, Marchioness of Exeter, Lady Hume's Blush, Dona Camilla de Faria, Donckelaari, and others. The individual cut blooms were especially fine and varied (silver-gilt Flora medal).

A large and varied collection of hardy bulbous and herbaceous flowers were staged by Mr. T. S. Ware, Hale Farm Nurseries, Tottenham. Many of the exhibits were exceedingly charming; and conspicuous amongst many others were Saxifraga Burseriana, Muscari botryoides, and botryoides album, Primula rosea, Hepatica triloba cærulea, and H. triloba rubra, Scilla sibirica, Iris reticulata purpurea, Polygonatum multiflorum, and Trillium grandiflorum. Amongst the bulbous flowers were Narcissus Barri conspicuus, N. Golden Spur, N. Emperor, N. bicolor grandis, N. Empress, N. Princeps, and Poeticus poetarum (silver Flora medal).

A splendid group of Beaumontia grandiflora blooms was staged by Mr. J. Fitt, gardener to Earl Cowper, K.G., Panshanger, Herts, the trusses and flowers being very fine (silver Banksian medal). Bunches of Ghent Azaleas, flowers of Clerodendron splendens, and plant of Veltheimia viridifolia were also sent from the same establishment. A group of mixed flowering plants, composed chiefly of Hyacinths, Tulips, Narcissi, Cyclamens, Arum Lilies, Clivia miniatum, and Anthurium Schertzerianum, intermingled with Palms and Adiantums, was staged by Mr. Wythes, gardener to Right Hon. Earl Percy, Syon House, Brentford (silver Banksian medal).

Messrs. Barr & Son, Covent Garden, London, exhibited hardy flowers, amongst which were Narcissus Empress, N. Sir Watkin,

N. bicolor Empress, N. grandis, N. Golden Spur, N. princeps, Iris reticulata, Anemone fulgens, Scilla sibirica taurica, Saxifraga oppositifolia, Chionodoxa sardensis, and Megasea Stracheyi (silver Banksian medal). A small but superb group of Amaryllis was staged by Messrs. Jas. Veitch & Sons, Chelsea, composed of Medina, Cupid, Chimère, Splendour, Gorgeous, and Phidias. A finely bloomed plant of Streptocarpus × Gratus was also included in the exhibit, and deserving of a special word of praise. Pots of Mignonette "Bush Hill White," were shown by Messrs. Low & Sons, Clapton (see below).

Messrs. John Peed & Sons, Norwood Road, London, staged a collection of Caladiums and other plants; amongst the former were chiefly noticeable Charlemagne, L'Automne, John Peed, Mercedes d'Argent, Triomphe de Comte, Baron de Rothschild and Ernest Caille (silver Banksian medal). A superb group of Cinerarias was staged by Messrs. J. James & Son, Farnham Royal, Slough. The plants bore traces of excellent culture, being sturdy of habit and crowned with flowers, large in size and of an excellent varied strain (silver Flora medal).

Messrs. B. S. Williams & Son, Upper Holloway, staged plants of Otaheite Orange, single Camellias, Boronia megastigma, and Clivias. The latter were especially worthy of mention, the flowers being large, and consisting of such varieties as C. Scarlet Gem, Model, Surprise, Aurantiaca, Holloway Beauty, Madame Van Houtte, robusta, and Ambroise Verschaffelt (silver Banksian medal).

Mr. H. B. May, Edmonton, exhibited baskets of Clematis in pots. The plants were clothed with blooms and produced a pleasing effect (bronze Banksian medal). Mr. J. Miller, gardener to Lord Foley, Esher, sent a small exhibit of Neapolitan Violets. R. Backhouse, Esq., Sutton Court, near Hereford, sent flowers of Narcissus Incomparabilis Dr. Fell, the size and quality being especially good.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair); with Messrs. James O'Brien, H. M. Pollett, Chas. Pilcher, H. Ballantine, De B. Crawshay, H. J. Chapman, E. Ashworth, W. H. White, Jas. Douglas, Ed. Hill, Major Mason, S. Courtauld, H. Williams, and A. H. Smee.

Messrs. F. Sander & Co., St. Albans, staged a very choice collection of Orchids, comprising a large number of kinds, of which Bollea Schröderiana (first-class certificate, see below), Cattleya Schröderiæ, C. Trianae, Odontoglossum Pescatorei, O. facetum, Batemannia peruviana, Dendrobiums, Lycastes, and Cypripedium Lawrenceanum Hyeanum were very prominent (silver Flora medal). A showy collection of Orchids, margined with Palms and Ferns, came from Messrs. B. S. Williams and Son, Upper Holloway. Several plants of Vanda suavis were to be seen, as also were Cypripediums in great variety. Dendrobiums, a basket of Calanthe Sanderiana, and a fine plant of Cymbidium eburneum were also conspicuous (silver Banksian medal). Mr. Billington, gardener to W. R. Lee, Esq., Audenshaw, near Manchester, staged a plant of Dendrobium splendidissimum illustris, said to be a cross between D. Leechianum and D. nobile nobilius. The blooms were of good size and rich in colour.

The group of Orchids shown by Messrs. Hugh Low & Co., Clapton, London, was very bright, and consisted of varieties Odontoglossum Roezli, Cattleyas, Cypripediums, and others (silver Banksian medal).

A small collection of Orchids was arranged by Messrs. Jas. Veitch and Sons, Royal Exotic Nursery, Chelsea. Prominent in this stand were Cymbidium eburneo-Lowianum, Dendrobium Murrhinianum, D. Cybele nobilius (a handsome richly coloured hybrid, resulting from a cross between D. nobile nobilius and D. Findlayanum), D. Cordelia (the result of a cross between D. euosmum Heucopterum and D. aureum), D. atrovioleaceum, Oncidium superbiens, Coelogyne cristata potoleuca, several Odontoglossums, and others (silver Flora medal). Mr. Bennett, Rangemore Gardens, Burton-on-Trent, showed a plant of Cypripedium bellatulo-venustum. Blooms of Cattleya Trianae were shown by the Rev. E. Handley, Royal Crescent, Bath; while Mr. Denny, gardener to Sir W. Marriott, Down House, Blandford, exhibited a spike of Odontoglossum Pescatorei.

Dendrobiums in splendid condition and variety were staged by Mr. J. Cypher, Cheltenham. The plants were well grown, profusely flowered, and comprised amongst others xanthinum, nobile pulcherrimum, n. nobilius, n. Statterianum, n. Cooksoni, n. Cypheri, and Wardianum giganteum (silver Banksian medal). Messrs. W. L. Lewis & Co., Southgate, showed a few Orchids, amongst which Cattleyas, Cypripediums, Odontoglossums, and Dendrobiums were observed (silver Banksian medal). De B. Crawshay, Esq., Sevenoaks, showed spikes of Odontoglossums; and Mr. H. Paulton, gardener to C. T. Cayley, Esq., Leigham Court Road, Streatham, staged two magnificent plants of Phaius grandifolius, carrying large numbers of grand flowers.

Mr. H. Holbrook, gardener to E. Ashworth, Esq., Wilmslow, Chelsea, showed five Dendrobiums. One of these was a superb example of D. nobile nobilius, said to be carrying 389 flowers, and on which the tallest pseudo-bulb was 3 feet 9 inches (silver Banksian medal). D. nobile Ashworthæ; a natural hybrid Dendrobium; D. nobile Ashworthi, and D. Schneiderianum (award of merit, see below).

Sir Trevor Lawrence, Burford Lodge, Dorking, staged plants of Dendrobium Tattonianum, D. cruentum, Eulophiella Elisabethæ, Vanda cærulea, Schomburgkia crispa, Cymbidium ensifolium, and Bulbophyllum burfordiense, which may be described as the Goliath of the genus.

Baron Schröder, The Dell, Egham, showed a small group of cut Orchids, comprising some grand spikes of Odontoglossums, Sobralia macrantha, Lycastes, and Cattleyas (silver Banksian medal). An award

of merit was awarded to Mr. B. Dunn, gardener to H. Weetman, Esq., The Hawthorns, Little Heywood, for *Odontoglossum luteo-purpureum amplissimum*, which is described below. The same exhibitor also showed a few other Orchids. An award of merit was accorded to *Cypripedium Olenus*, staged by R. I. Measures, Esq., Camberwell, a hybrid that is referred to below.

CERTIFICATES AND AWARDS OF MERIT.

Amaryllis Gorgeous (J. Veitch & Sons).—This variety has well-formed flowers of great substance. The colour is a rich deep crimson (award of merit).

Bollea Schröderiana (F. Sander & Co.).—This is a new Orchid that has only recently been introduced. The sepals and petals, with the exception of a very faint flush of rose at the tips, are pure white, the lip being rosy purple (first-class certificate).

Clivia (Imantophyllum) Model (B. S. Williams & Son).—The spike of this variety was very fine, the flowers being orange scarlet in colour, and of good form and substance (award of merit).

Cypripedium Olenus (R. I. Measures).—This is a hybrid between *C. bellatulum* and *C. ciliolare*, the parentage being quite perceptible. The petals are pale claret with dark brown spots; the dorsal sepal is the same ground colour with green and brown markings, while the lip is a deep claret (award of merit).

Dendrobium Cordelia (J. Veitch & Sons).—This is the result of a cross between *D. euosmum* *Heucopterum* and *D. aureum*, the former of which is the pollen parent. The sepals and petals are cream with a thin rose edge. The lip is a superb feature. The margin is cream, claret crimson throat, blotched and veined pure yellow (award of merit).

Dendrobium Donnesia (H. Whiffen).—This is a beautiful form, with narrow paper white sepals and very broad petals of the same shade. The lip, which is very long, is paper white with a pure yellow throat (award of merit).

Dendrobium Schneiderianum (H. Holbrook).—This is from a cross between *D. Findlayanum* and *D. aureum*. The sepals and petals are white, flushed rose, while the throat is deep yellow with a crimson base and a rose lip (award of merit).

Dendrobium splendidissimum illustris (J. Billington).—This hybrid is the result of a cross between *D. Leechianum* and *nobile nobilius*. The sepals and petals deep rose, shading to white towards the base, while the lip, which is large, is velvety crimson, with a white band and a deep rose tip (award of merit).

Mignonette Bush Hill White (H. Low & Co.).—This variety has very white flowers, the purest we have seen, rather thinly produced on the spike (award of merit).

Odontoglossum luteo-purpureum amplissifolium (B. Dunn).—This *Odontoglossum* is very handsome. The sepals are brown with a green tip and a blotch of the same colour at the base. The petals are brown tipped and marked whitish green. The lip is broad, fimbriated, pure white, with a heavy blotch of brown, and bright yellow throat (award of merit).

Streptocarpus × *Gratus* (J. Veitch & Sons).—This *Streptocarpus* is remarkably floriferous, the blooms rosy red in colour, with darker markings, being borne on stout footstalks. The leaves are very large (award of merit).

RAPHIOLEPIS OVATA.

"SUBSCRIBER" writes:—"Be good enough to give me, through the medium of the *Journal of Horticulture*, a few particulars of *Raphiolepis ovata*, a plant of which I have had given me, and do not know how to treat it, or what the flowers are like." It is a shrubby evergreen plant, a flowering shoot being represented in the illustration (fig. 49). In some situations the *Raphiolepis* will pass the winter safely out of doors, especially in the south of England, but it is useful everywhere in conservatories or cool houses, its bold vigorous habit and glossy green leaves always having a good appearance. When in flower it is still more attractive; the large heads of white blooms, being produced at the ends of the branches, are very conspicuous.

CONTROLLING TOMATO DISEASES.

A GREAT deal has been written in the *Journal of Horticulture* at various times about the diseases that attack Tomatoes, and different remedies have been advised. It seems to me, however, that as the Tomato grows in favour so rapidly, and consequently is much more extensively grown every year, diseases seem to spread with equal rapidity, and anything that can be advised for holding such in check is of great importance to the world of horticulture. Being a gardener in a private place I have not grown Tomatoes by the thousand like some, but for several years now I have paid special attention to their cultivation, and have been very successful, not only in growing heavy crops of fine fruit but entirely free from disease, and by your permission I should like to say a few words on the subject.

First of all then I may say that I believe most of these diseases, if not all, may be held in check, if not entirely obviated by cultivation alone, and my experience tends to show that the chief factor in preventing disease is a confined root run. For some years now I have grown nearly all my Tomatoes in 10 and 12-inch pots, potted very firmly, and whilst a few that have been planted out in borders have entirely succumbed to disease, those in the pots have borne heavy crops of fine

fruit to the end of the season. This experience has been in different parts of the country widely separated, so that it cannot be either the soil or the locality that is responsible.

I account for it myself in this way. The Tomato being a very vigorous plant, if allowed a free root run with liberal supplies of liquid manure, would make enormous growth in one season, but the crop would not be a very profitable one. Now it is for the crop that we grow it, and in order to obtain fruit of good quality we allow the plants to make but little stem or foliage compared with what they would naturally form; therefore if we are going to so materially restrict the growth of the plant it seems obvious that we ought to treat the root action likewise, or something must go wrong. Some correspondents have inferred that organic manure is accountable for disease. During the time that I have



FIG. 49.—RAPHIOLEPIS OVATA.

been so successful I can safely say that I have never used chemical manure at all, always employing the drainings of the stable and cow yard. I am going to use chemical manure on some of the plants this year, to see if it will make any difference. I certainly do not see why it should, unless by using it in excess they are injured.

I am well aware that I am not the only one who grows Tomatoes in pots, but it would be very interesting to know if any of your correspondents who have tried this plan have had their plants destroyed by disease. If they have, then it becomes obvious that that is not a preventive. Until, however, someone can come forward and say that their plants in pots all succumbed to disease I shall certainly think there is something in it.

Of course, there are other points of importance to be considered, such as the selection of good seeds and soil, but if desired I would give full cultural details. For the present I think I have said enough, except that I do not advise everybody to go and buy as many 12-inch pots as they wish to plant Tomatoes, and say good-bye to all diseases. I certainly think that if those who are growing for market would restrict the size of their beds to, say, 15 inches wide and about the same depth, insure good drainage, and plant firmly, the Tomatoes would need much less soil, but a little more attention in the way of watering, for which the growers would be amply repaid.—W. S. E.

SPRING SHOWS.

GRASSENDALE AND AIGBURTH.—MARCH 16TH.

THE fifth annual spring show was opened on the above date at the Parish Room by the Rev. C. Yeld, Vicar of Grassendale, who congratulated the Committee on the increasing prosperity both in funds and membership. There were thirty classes provided, the entries numbering 140. Thanks to the staging Committee, ably assisted by the energetic Secretary (Mr. R. Fawkes), the plants were displayed to great advantage; the room in fact could not have looked more beautiful. Hyacinths and Tulips were shown in good condition, the veteran cultivator, Mr. J. Kelly, gardener to R. Singlehurst, Esq., winning for twelve and six distinct. For six pots, three bulbs in a pot, Mr. J. Grant, gardener to W. S. Gladstone, Esq., won well, also for six double, six single Tulips, and six pots Narcissus. The prize for Amaryllis was worthily won by Mr. T. Johnson, gardener to G. W. Moss, Esq. Mr. Johnson was also granted a certificate for an admirable collection, not for competition, which displayed high cultural skill.

For stove and greenhouse plants, a specimen Fern, and specimen Orchid, Mr. J. Bounds, gardener to A. L. Jones, Esq., took all the firsts, the prize for two Orchids going to Mr. G. Leadbeater, gardener to W. J. Davey, Esq.. Azaleas were bright and in good condition, Mr. J. Kelly winning in both classes. Mr. F. Field, gardener to J. H. Wilson, Esq., and G. Leadbeater winning with hardy and greenhouse Rhododendrons, the latter taking the prize for forced hardy plants. Cinerarias, Primulas, and Cyclamen were superbly shown, Mr. A. Lewis, gardener to T. Neal Esq., being simply invincible. This group of Cyclamen he exhibited were acknowledged by some of the most experienced growers to be perhaps the finest they had seen at any show. Mr. J. Grant was successful with Spiræas and Carnations in pots, Mr. Kelly with Palms and table plants, and Mr. J. Heaton, gardener to R. T. Houston, Esq., with a bouquet.

A pretty feature was the special prize given by Messrs R. P. Ker and Sons for the most tastefully arranged hamper of plants, the hamper not to exceed 3 feet, and which might be carried out at many other places. Mr. Bounds won, and was closely followed by Mr. J. Heaton. Messrs. R. P. Ker & Sons, Aigburth Nursery, were awarded a certificate for a collection of superb seedling Clivias. Throughout the day the attendance was of a most gratifying character.—R. P. R.

BRIGHTON.—MARCH 26TH AND 27TH.

THIS was a much better show than expected, for there were scarcely any classes without several competitors, and many were very closely contested. The benefits of a practical and working Committee were well shown, and a good meeting resulted.

A silver cup was presented by T. Billing, Esq., for a group of miscellaneous plants, and called out some spirited competition. Mr. G. Miles, Victoria Nursery, Dyke Road, was awarded this for a very charming arrangement of Asparagus, Aralias, Amaryllis, Palms, and other plants, the smaller and brighter of which were well shown up by a low groundwork of *A. cuneatum*, the whole being encircled with Primroses. Mr. Meachen, gardener to Mrs. Armstrong, Woodslee, Preston, was second with a very pretty group, but too heavy in arrangement. For a table of plants Mr. Jupp, gardener to G. Boulton, Esq., Eastbourne, was first, closely followed by Mr. J. Hill, gardener to Marriage-Wallis, Esq., Withdeane. For a smaller table, open to single-handed gardeners only, Mr. Anderson, gardener to S. Cowell, Esq., Melodia, Preston Park, and Mr. Wickens, gardener to Mrs. Dawson Rowley, Chichester House, Brighton, were first and second.

Mr. Hart, gardener to A. Head, Esq., Shoreham, was a good first for twelve pots of Hyacinths in a well-contested class; while for six Mr. Wickham, gardener to J. Humphrey, Esq., Highlands, Keymer, won. Tulips were good, but not numerous. Mr. Rapley, gardener to Miss Visick, St. John's, Withdeane, was first for twelve; and Mr. Hart for six pots, also first for six Violets. The twelve Cinerarias from Mr. Murrell, gardener to Mrs. Macdonald, Manor House, Preston, and the nine greenhouse Azaleas from the same place were marvels of good culture. Mr. G. Miles had some beautifully flowered *Azalea mollis*. Pot Roses were not up to the usual standard if we except Mr. Meachen's six plants, which gained first honours. The same grower's *Deutzia gracilis* were grand; as also were his pots of Lily of the Valley, obtaining first in each class. Mr. Hart was first for twelve Narcissus, and Mr. Wickens for six Amaryllis. Callas from Mr. Murrell and Mr. Harper were good, and Mr. Murrell was also first for six double and six single Primulas.

Pots of Strawberries in fruit were shown in good condition, the first prize for six being awarded to Mr. Golding, gardener to H. St. George Voules, Esq., Uplands, Dyke Road, and second to Mr. G. Helman, gardener to Viscount Gage, Fittle Park, Lewes.

An epergne of flowers brought several competitors, and resulted in Mr. E. Meachen just defeating Mr. R. Miller. For twelve varieties of cut flowers Mr. H. Garnett, gardener to R. J. Fletcher, Esq., Withdeane, was deservedly put in front of Mr. J. Gore, Polegate, but the points were close.

As usual, there were many exhibits not for competition, the most noteworthy being a good stand of Azaleas, Boronias, Dendrobiums, Ericas, Hyacinths, and Palms from Messrs. Balchin & Sons, who also decorated the stage; a small collection of fruit and seeds from Messrs. J. Cheal & Sons, seeds from Messrs. Tilley Bros., a complete collection of garden implements from Messrs. Palmer & Co., and a stand of artificial flowers from Madame Hastings, Brighton.



FRUIT FORCING.

Vines.—Earliest House.—If fermenting materials have been employed inside the house they should be removed before the berries commence colouring, retaining about a couple of inches thickness as a mulch, and affording a thorough supply of water or liquid manure, or a top-dressing of some approved chemical manure washed in. The manure supplied at this juncture must be of a sweet nature, and not likely to taint the flavour of the Grapes. This sometimes arises from the late use of soot and other crude substances, and that of a sustaining rather than a stimulating character is most advisable. Phosphatic and potassic manures, which usually contain sufficient nitrogenous elements for the due formation of chlorophyll are valuable, and suffice for the appropriation of the other substances. After the Grapes commence colouring ventilate as freely as possible, and gradually reduce the atmospheric moisture. The temperature should be maintained in the daytime at 70° to 75°, with 10° to 15° rise from sun heat, allowing a decline to 65°, or even 60°, on cold mornings. Allow a moderate extension of the laterals, as this accelerates root activity, favours due supplies of nourishment to the fruit, and aids, rather than hinders, acquirement and retention of colour in Black Hamburgh and other black Grapes. Crowding, however, must be avoided, as the results depend on the amount of matter assimilated and stored.

Vines in Flower.—A moderate amount of atmospheric moisture, with a steady circulation of warm (rather drier for Muscats than Hamburgs) air, is desirable when the Vines are in flower, with a temperature of 70° to 75° for Muscats, and 5° less for Black Hamburgs, allowing an advance of 10° to 15° from sun heat. Muscat of Alexandria and Canon Hall Muscat—the two finest Grapes extant—should have the points of the bunches brought to the light, and be lightly brushed over, when the caps of the flowers have parted from the calyxes, with a camel-hair brush, and shortly afterwards pollen, taken from free-setting varieties such as Alicante, be applied to the stigma. All shy-setting kinds ought to be fertilised artificially in this manner, the correct procedure being to brush over the bunches of the latter first, and then apply the pollen with another brush, always operating lightly, and with circumspection.

Disbudding Vines.—This, as a rule, should not be attempted until the bunches appear in the points of the shoots; even then it is not advisable to be in a hurry, nor remove a large amount of growths at a time, so as to give as little check as possible, and divert the sap into the shoots retained equally. Reserve no more growths than can have full exposure to light, as crowding is one of the chief causes of disaster in Grape-growing. The bearing shoots should be 15 to 18 inches apart. This gives sufficient space for the exposure of the lateral as well as the principal leaves to light and air, and where the extension system is followed, the canes trained 2½ to 3 feet apart for having bearing shoots the following year on both sides, but for these on the upper side only 15 to 18 inches distance suffices.

Stopping Vines.—When the growths have advanced one or two joints beyond the show for fruit the cultivator should exercise judgment in respect of the space, and stop so as to apportion the leafage for due exposure. Where there is space it is better to allow shoots with fruit to extend three or four leaves beyond the bunches before taking out their points, then there must be space for lateral growth, it being preferable to allow the laterals to make two or three leaves before stopping, afterwards pinching as space permits. This applies to growths above or level with the bunch, the object being to secure abundant supplies of nutriment to the clusters. The laterals from the leaves below the bunches may be pinched to one first joint and to one leaf afterwards as growth is made. This secures good results in the current season without prejudice to the prospect for another year. Where the space, on the other hand, is limited, it not being possible to carry out the process without crowding, the bearing shoots may be stopped when the leaf at the point determined on is the size of a halfpenny, one or two joints being allowed beyond the bunch. The lateral, level with or above the fruit, must be pinched to one leaf as growth is made, and those below the bunch can be dealt with in a similar manner. This will secure plump basal buds and admit of close pruning, while the principal leaves have full exposure to light, and there is some amount of lateral growth for sustaining root activity and a fair amount of nourishment and stored matter for meeting contingencies. Under these conditions, combined with clean foliage and judicious management, Grapes may be grown satisfactorily by either method, but there is greater danger of overcropping and consequently indifferent finish by the restrictive than by the freer lateral development.

Thinning Grapes.—Free-setting varieties may have the berries thinned as soon as they are out of flower, even such as Gros Colman whilst they are in flower, as then the best berries can be decided on, and those left get all the benefit of the swelling and are larger in consequence. Muscats and other shy-setting varieties should not be thinned until it is seen which berries are taking the lead in swelling,

these only being properly fertilised and will stone and swell perfectly. Allow sufficient space for each berry to attain full development without wedging, yet no more, as loose bunches are even worse than somewhat close but not deformed berries. Thinning is a matter of judgment, being determined by the variety, capabilities of the Vines, and the crops.

Watering, Feeding.—In the early stages of growth Vines require a moist soil only, anything like a sodden condition inducing a feeble break and retardation of root formation. Such condition often arises from a rich and close state of the border, for where the soil is open and well drained it can only hold water to the extent of its retentive power, consequently it is always sweet, as fresh supplies merely dislodge such surplus, and may have advantages from a sanitary point of view. When Vines come into leaf they push fresh roots and require water more abundantly, this being determined by the staple and area. A narrow border will require water twice as often as one double the width, assuming the Vines to be equally extended and cropped, and a border of loose materials will require watering much more frequently than one formed of firm retentive materials. The cultivator, therefore, must be guided by the state of the Vines in relation to their rooting medium and area. Examination of the border is the only safe plan, and when water is necessary afford a thorough supply. Surfacedressings of the approved chemical manures should be applied after the soil has been duly moistened and then be washed in moderately. About 4 ozs. per square yard is a proper quantity to apply at one time, the first being supplied when the Vines are coming into leaf, another when the Grapes are setting, and afterwards every month or six weeks till the berries change colour for ripening, when the last may be given. This will help the Vines considerably at their most important stages of growth, extra feeding being given to weakly and heavily cropped canes. In the case of outside borders the top-dressing should be applied if possible with a prospect of moderate rains following, so as to get it into the soil, but without danger of its being washed clean away by heavy downpours. Liquid manure should always be applied tepid, never very strong, and preferably after the soil has been made moderately moist. Manure water should be about the colour of beer, or neat stable and cowhouse drainings be diluted with six times the bulk of water. A pound of the advertised fertilisers to 20 gallons of water is usually quite strong enough, about 4 gallons per square yard of such solution as a rule constitutes an average watering. Of course, four times the quantity will be required to bring the soil into a properly moist condition if it has been allowed to become very dry, but such must first be effected by clear water and then follow with the liquid manure. In light soils or with the roots near the surface a light mulch of sweetened horse droppings, say an inch thick, will be of benefit, it being better to apply the light dressing and add to it from time to time than supply a heavier coat. For very light open soils a mulch of cow manure is preferable, as it holds moisture better, and when the roots are working in the surface soil advertised fertilisers can be furnished with great benefit, as they supply nutrient matter in proportion to the amount of humus and counteract its otherwise over-luxuriant tendencies.

Late Vines.—Judicious syringings aid the breaking of the Vines, as the flow and diffusion of the sap depends on a moist genial temperature, but excessive sprinkling and a confined atmosphere provokes aerial roots, which betray an indifferent condition at the roots proper. Syringing in the morning, and at closing time or early in the afternoon, suffices for the rods, and damping down before nightfall secures a steady amount of moisture in the atmosphere. A minimum temperature should be secured to the Vines at starting, advancing to 65° from sun heat; but when the buds break the heat should be gradually raised, so as to have it 60° to 65° at night by the time they are in leaf, 65° artificially by day, 70° to 75° with gleams of sun, and 80° to 85° or 90° on bright days, ventilating from 75° and freely above it. Vigorous canes should be depressed, so as to secure an equal break, even depressing refractory canes below the horizontal line to prevent a rush of sap to the upper part until the eyes have started evenly from the base, when the canes may be brought up to the wires. If the canes push more than one shoot from an eye rub off the weakest, leaving one only, deferring further disbudding until the bunches become visible.

Young Vines.—Those planted last season and cut back to the base of the trellis at the winter pruning should be encouraged by gentle fire heat—say 55° at night and on cold days, so as to encourage them into growth; give benefit of the summer sun, and allow time for making and completing a good growth. Pinch the laterals at the first joint up to a height of 6 feet, and to one of subsequent growth, above which they may be allowed more freedom, but such growth only favours root development and a sturdy rod formation, and is only desirable in the case of weakly Vines. The laterals must not be allowed to interfere with the principal leaves in any way, which, for the proper assimilation of food, must have full exposure to light, so as to secure plump fruit buds, especially on the lower part of the canes.

Planting Young Vines.—When the growths of the canes are an inch or two long they should be transferred to the border. If cut-backs of last year's eyes they may be shaken out and placed in position either before or after they have started to the extent named, the roots being disentangled and spread out evenly in the border, covering the main roots about 3 inches deep, and watering moderately to settle the soil about them. Vines of the present year's raising will not be fit for planting out before May or June, but where the turf system is practised they should be transferred to their permanent quarters before they have rooted beyond the turves. It is a good practice, however, to rub off the first roots appearing outside the turves, which induces a fibrous root

formation quite close to the stem, and when the turves are well occupied with such the sooner they are planted the better. Likewise, Vines in pots must not be allowed to become much root-bound before placing them in their permanent quarters. The Vines require a temperature of 60° to 65° at night, 70° to 75° by day with gleams of sun, and 10° to 15° advance on bright days, maintaining a good moisture by syringing in the morning and afternoon, damping other surfaces as they become dry so as to secure a genial atmosphere. Dormant Vines should be allowed to start naturally, or not be subjected to a higher temperature than 50° to 55° artificially, and 65° by day from sun heat, with free ventilation above that point.

Vines for Early Fruiting in Pots.—Cut-backs of last year's raising should receive their final shift into pots 12 inches in diameter, which must be clean and efficiently drained, clean crocks or oyster shells being preferable to half-inch bones. Good turfy loam, with a sixth of old mortar rubbish and a twelfth of charcoal "nuts," form a suitable compost, adding about a quart of soot to each bushel of loam, or half that amount of some approved fertiliser. Pot firmly, using the compost rather rough. Place the pots in a position where they will receive moderate warmth from hot-water pipes in preference to plunging in bottom heat, but in this case the heat should not exceed 80° to 85°, and the Vines not be allowed to remain so long that roots enter the plunging material. Keep the house rather close, and if the weather be bright shade for a few days. It is important that the canes be trained near the glass so as to receive all the light possible and insure the thorough ripening of the wood, which for satisfactory fruit production must be solidified as made. Pinch the laterals at the first joint, and treat subsequent growths similarly, stopping the lead at about 8 feet.

THE KITCHEN GARDEN.

Asparagus.—Asparagus beds ought to be attended to without further delay. If the old-fashioned plan of giving a heavy dressing of solid manure has been followed, do not rake all off into the alleys, but fork it over and clear away all hard rubbish, leaving the rest in a neat state. When the surface of the beds is bared down to near the crowns the shoots are liable to be killed by spring frosts, and in any case the mulching gives a desirable length of blanched stalk, and also serves to keep the beds moist during a dry summer. Unfortunately, heavy autumnal dressings of manure do harm in most cases where the soil is of a heavy clayey nature, as also does salt on a similar compost. Though applied now at the rate of from 2 ozs. to 3 ozs. per square yard it acts beneficially on lighter soils both as a manure for the Asparagus and a destroyer of weeds. Where the crowns are very close to the surface, now is a good time to give a liberal top-dressing of fresh loamy soil and well-decayed manure.

Protecting Asparagus.—There is such a scarcity of fresh vegetables that early Asparagus will be even more acceptable than usual. It is the narrow raised beds that should give the first cuttings, and if well bared to the sunshine growth might be expedited considerably, but this is a far too risky proceeding, as many shoots are crippled either before or just as they are coming through the surface by severe spring frosts. A light mulching of strawy litter is of the greatest service in protecting early Asparagus, and it pays well to remove this from the beds every morning, and return it in the evening.

Planting and Sowing Asparagus.—The best time to plant Asparagus is when the first shoots are 3 inches or more in length, and those who raise their own plants have, therefore, the advantage. When they have to be bought they ought to be sent for before this growth has been made, or otherwise the chances are the young shoots will be broken and the new root fibres dried up. They need not be planted directly they arrive, but may be spread out on the surface of a warm border and covered with 2 inches or rather less of fine light soil, transplanting to the beds after top and root growth has well commenced. If not already done the beds ought to be prepared for either planting or sowing at once, sowing seeds where the plants are to remain answering well. Where forcing is resorted to an old bed is usually broken up and a new one formed every season. For an early supply form beds 3 feet wide, these to hold either one or two rows of plants. For the main crop the beds may be from 4 feet to 5 feet in width, for three rows of plants dispose from 15 inches to 18 inches apart in each and every case. If seeds are sown now dispose them thinly in shallow drills, and thin out in due course. There is no particular art in growing Asparagus. Where the site is naturally well drained and the subsoil of a gravelly nature all that is needed is a good depth, or say from 12 inches to 18 inches of good soil on this. When beds are formed mark out the site, which should be well drained, allowing alleys 2 feet wide between. Throw out all the good surface soil and break up the subsoil. If the latter is very clayey remove a good portion of this, substituting any free working soil, coarse mortar rubbish, and strawy manure for this. If not very clayey be content to add mortar rubbish, half-decayed manure, and decaying garden refuse. The top soil to be returned to its original position, and will be improved by the addition of fine mortar rubbish, leaf soil, well decayed manure, and such like.

Rhubarb.—Just when the crowns are bursting into leaf is a good time to divide and replant Rhubarb. It is the younger clumps that usually produce the finest and most succulent stalks, and some replanting should be done every season. Divisions with one to three crowns attached may be detached from old clumps with the aid of a spade. Replant these in deeply dug, heavily manured ground 3 feet apart each way, and do not pull from them this season. Bare the surface roots of old clumps, manure heavily, and return the soil to the top.

THE BEE-KEEPER.

THE APIARY.

My hives are all good condition. The frost is not yet fully out of the ground, and there is as yet a paucity of flowers. Breeding is going on briskly in all the well provisioned hives, their dry interior favouring this, while the foreign element in my apiary gives me better working hives, and consequently a greater yield of honey than I can obtain from English bees. This is my experience of thirty years.

Very few of my stocks require feeding; those which do so will be fed from a tin scoop from beneath. Top feeding, unless during summer in the case of nuclei, I do not approve of. Many beginners, who heeded the teachers of the top-feeding system last autumn, notwithstanding the mild months of November and December, record the loss of their hives; with nicely packed crowns, with porous material and under feeders, the loss would have been avoided. Circumstances could be explained to prove exceptions, but where there are risks it is better to avoid them; at least, such is the experience of—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES.

A THOROUGH overhaul of all stocks in my apiary shows the fallacy of a severe winter being injurious to bees, also that it is not necessary to have the hives facing due south. Some of mine are in that aspect, others due east, but the majority, for certain reasons which I need not explain here, are facing due west. In this locality the prevailing high and cold winds come from that direction. People are often surprised at the bees doing so well, thus showing that it is not the cold or high winds, which in this case blow direct into the entrances, that is fatal to their well being. In fact, other things being favourable, such as dry well-made hives with ample warm covering on the top of the frames, high winds and cold weather are advantageous rather than otherwise.

Of course, all stocks must be well prepared with ample stores to come safely through a severe winter like the last one, and the nearer one can imitate Nature in this respect the better. Were bees left to themselves, and their stores not interfered with in any ordinary season, there would be numbers of sealed-over natural stores. If the bee-keeper deprives them of that, he should supply them with something of equal value for their requirements throughout the winter.

The most satisfactory way of doing this is to feed artificially as soon as the honey flow is over, as the stores will then be sealed over the same as their natural stores were before they were deprived of them, and the earlier this is done the better. If the honey flow is over with the decline of the White Clover and the Limes, as it is in my case, and is never later than the end of July, I feed at once with the best white cane sugar that can be procured. There are several advantages of doing it thus early, as besides coming nearer their natural supplies, the bees take the syrup more readily than they do later in the season when the nights are getting cold.

Very little, if any dysentery will take place, which in some seasons is very prevalent when bees are fed late, and the weather is too cold for them to properly seal their stores. By working on these lines very few losses will occur in any well managed apiary. I am convinced that it is owing to these small details in management that my bees have wintered so well, and have come out so strong and healthy after being confined to their hives for so many weeks. Some stocks I find have used much more of their stores than others. By moving a frame of stores from those that had enough and to spare to those that were short, has kept all in good condition, and is better than feeding with syrup.

BEES UNSATISFACTORY.

Enclosed find a piece of comb which I found in a hive in the autumn. Will you inform me through the medium of your valuable paper whether the bees are suffering from foul brood? The bees appear strong and healthy, but do not work freely.

The comb forwarded is not affected with foul brood, and as the bees have not worked satisfactorily I am inclined to think there must be some fault with the queen. When the queen is old and few eggs are being laid, bees will often stay about the hive instead of working freely. In that case it is better to remove the queen at the first favourable opportunity and rear a young one, but this should not be done before May. It would be better to rear a queen from a good working colony than from a stock that has not been satisfactory owing to the queen being aged or otherwise.—AN ENGLISH BEE-KEEPER.

TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Centrostemma (W. Keay).—The Centrostemmas are nearly related to the Hoyas, but of erect, shrubby habit. They succeed in a cool stove or warm greenhouse temperature, and as a rooting medium prefer a mixture of turfy loam, peat, and crushed lime rubbish. A sunny position is desirable, and the soil should be kept rather dry than very wet during the winter.

Examinations in Horticulture (Thos. Lewis).—As we have more than once stated, all requisite information can be obtained from the Secretary, Royal Horticultural Society, 117, Victoria Street, Westminster, S.W. The questions are not disclosed till the students assemble in an appointed room, and they must answer them within the time then specified without reference to any books or leaving the room.

Phenyle for Cucumber Disease (J. W.).—Soluble phenyle will destroy eelworm in the soil, but it will not cure infested plants. The thing is to prevent attacks by thorough disinfection of the soil and structure, and in no other way is it possible to avoid infection. The way to use phenyle is given in our issue of March 14th (page 241), and employed in the manner described is thoroughly efficacious, the stronger solution being used for disinfecting purposes.

Narcissus Horsefieldi and Similar Varieties, Transferring from Alluvial to Very Sandy Soil (J. K.).—Although Narcissus succeed fairly well in light sandy soil, they like something more substantial as a base or subsoil, and can only be kept in satisfactory condition by liberal dressings of manure. On such soil we found nothing better than cow manure, a good dressing (40 tons per acre, quarter of a ton per rod) being given and worked into the soil to a depth of a foot before planting. This supplies humus and nutrient matter, and suffices for a number of years, or until they require taking up for division, assorting, and replanting. We, however, also gave a top-dressing each autumn of thoroughly decayed manure, and the Narcissus thrive much better than on heavier and richer soil.

Potatoes on Very Sandy Soil (Radcliffe).—Potatoes can be grown well on soils that produce fair crops of Carrots, Peas, and Clover. The early varieties, such as Ashleaf, do well, and coming in early bring good returns, while Magnum Bonum yields heavily for late use, the tubers being of good quality and even size. Bone and blood manure are excellent for such soils, also native guano, as they supply a certain amount of humus. About 5 cwt. should be used per acre. As the land may contain a fair amount of humus from crop residues, the following may be all that is required:—Kainit, 1½ cwt.; nitrate of soda, 1 cwt.; bone superphosphate, 2½ cwt.; iron sulphate ½ cwt., mixed, per acre, applying at the time of setting. The nitrate of soda should be crushed fine, so as to secure thorough mixture and even distribution. As regards the business matter, you must take what course you think best. It is proverbially difficult for outsiders to advise in such matters.

Fungus on Tomatoes—Useful Preventives (W. M. L. M.).—1, Employ sufficient fire heat to maintain a somewhat dry atmosphere. 2, Pick off the much-affected leaves and burn them. 3, Spray (not syringe) the plants thoroughly on the under as well as the upper surfaces of the leaves with Bordeaux mixture, using a weak one, say 2 ozs. of sulphate of copper dissolved in half a gallon of water in a vessel by itself; slacking 2 ozs. of quicklime in another vessel, and forming into a thin whitewash; then pour this into the vessel containing the sulphate of copper solution, then add enough water to make 3½ gallons; stir well, strain through a hair sieve, and apply to every part of the plants, coating them evenly with the thinnest possible film of the Bordeaux mixture, also every part of the house. The lime must be quite fresh and the sulphate pure. It may be necessary to repeat the spraying in about a week or ten days. Other methods are—4, Dissolve 1½ oz. of carbonate of copper (precipitated) in a pint of liquid ammonia, and mix 1 fluid oz. to 1½ gallon of water for spraying. 5, Dust thoroughly and frequently with anti-hlight powder. Mr. Robert Fenn keeps his plants perfectly free from the fungus with powder that he obtains from Messrs. Barr & Son, Covent Garden. Whatever may be used must be applied in time as a preventive, as when the enemy establishes itself in the leaves it is obviously master of the position.

Heating House (A. F.).—A flow and return on each side of the house would give sufficient heat for Tomato culture from March to November, inclusive, but there is always an advantage in having ample piping; therefore the additional flow and return would be advisable, and a necessity for winter work. The pipes should be 4-inch, and may be arranged as shown in the sketch on page 136, the boiler being at the lower end of the structure, and the flow and return pipes on each side placed one over the other. The other two pipes may be on the same level or nearly so, following the incline of the ground, having an air tap at the highest point, or on the upper part of the cross piece, similar means being employed on the side pipes, but these should be air pipes and always open.

Packing Fruit (E. C.).—American Apples are sent to this country in barrels, the fruit being firmly pressed down without any packing. Each barrel holds about three bushels. Much fruit is sent from Kent to London in round, very strongly made, bushel baskets. French Plums are sent in deal boxes, differing in size, many being about 2 feet long, 18 inches wide, and 9 inches deep; but choicer fruits are sent in much smaller boxes containing two or three layers of fruit, packed in soft paper shavings, the boxes also being lined with paper, the ornamental or "laced" margin of which is brought very neatly over the fruit, giving the boxes a very attractive appearance. Some of the smaller of these, a foot in length or less, are extremely tasteful, and not a few purchasers consider them worth more than the fruits they contain.

Black Muscat (Hamburgh) Grapes Blackened (J. M.).—The berries just set are not infested by any parasite, but have the cuticle or skin destroyed by some corrosive substance, which appears to be that of the fumes of sulphur. It is not necessary for the Grapes to be near the pipes, as the fumes pervade the house, and are often more disastrous at the top of the structure than near the pipes, as the moisture is greater and it takes most effect in consequence. There is a disease to which this Grape is liable that causes the berries when just set to turn black and drop off. This can be traced to a wet and sodden condition of the soil, the Vines having no roots but the thick woody portions, and much of these decayed. In that case the malady is internal, the berries black or discoloured right through; but in yours the internal tissues are quite healthy, the ovules being fertilised, and even swelling to some extent. We therefore consider the fumes of sulphur have produced the mischief, which does not arise until the berries are set. Perhaps the roots are not in good condition, in which case the mischief would be intensified.

Young Cucumber Leaves and Tendrils Turning Yellow (F. W.).—The symptoms you describe are not those of "yellows," but of eelworm or defective root action, but which we cannot say in the absence of specimens. We have known the appearance you describe follow a check, such as a sudden change from dull and cold to bright weather, also a supply of cold water, or an excessive supply of this making the soil sodden, with a consequent loss of roots, causing the foliage to die back and the growths to become stunted. The sulphate of iron is useful against eelworm, which we fear the symptoms indicate, and you should use kainit at alternate waterings, not employing more than $\frac{1}{2}$ oz. in a gallon of water, and apply a gallon of such solution per square yard with a fine-rose watering can. The turfy loam ought to have been disinfected before use, as there is great danger in using fresh-cut loam, and the mixing with fresh horse droppings would aggravate the evil, while the burnt ashes from a smother heap and the old mortar rubble would to some extent counteract it. Possibly by the use of the kainit and sulphate of iron you may overcome the eelworm before it has taken possession of the plants and commenced breeding, when there is no cure.

Vines Flagging (E. B.).—Having regard to the extreme severity of the weather in March, and the consequently cold border, it would have been better for the Vines if they had not been started quite so soon, or been brought on more slowly. The growths have been supported by the nutritive matter that was stored in the buds and stems last summer, and if this is exhausted before fresh root action commences the leaves are bound to flag under the influence of the sun. Maintain a somewhat moist atmosphere by damping the house frequently, and only provide sufficient heat for sustaining health, not forcing growth. Admit no air by the front sashes to dry the atmosphere, and thus increase transpiration from the leaves, and on sunny days, when there are signs of flagging, sprinkle the glass with limewash with the aid of a syringe. By the methods advised we hope you will be able to keep the Vines fresh, and in the meantime every day will bring the roots into more active operation. The border should receive all the sun possible, removing the mulching (if any) to permit this, but casting it on when the sun leaves the border to prevent radiation on cold nights. Heavy mulchings on Vine borders that need the sun's warmth may be injurious at this season of the year.

Moles in an Orchard (Annoyed).—There is no plan equal to trapping, the traps being set in the main runs and in proper form. If the traps are properly set in the main runs, which are usually found in ditches or by the sides, or on banks where they must cross into the enclosure from surrounding land, they are so much concerned about feeding on reaching their foraging ground that they rush headlong into the traps. There is an art in catching moles, and it consists in a study of their habits, and these acquired it is easy to set traps so as to capture them. Poisoned worms have been used for the extermination of moles, the poison being introduced into the body of the living worm, and that dropped in the main run. The poison used is strychnine, but it is not easily introduced to the body of the worm except by experts. Twigs of

common Elder introduced into the main runs will effectively bar the entrance of the moles into the orchard, or even leaves or growing shoots of that tree and dwarf Elder have a similar effect. The moles abhor both. We have kept them from ploughing up flower beds and raising their hillocks on lawns by merely thrusting living (dead are useless) pegs or small stakes into the runs where they entered the ground from the park and woodland adjoining.

Preventing Mildew on Vines (J. B.).—The Vines, if they have not started into growth, may be washed with a 10 per cent. solution of sulphate of iron (green vitriol or copperas), applying it to the rods with a brush. The walls should be whitewashed, using the copperas solution 1 lb. to a gallon of water for mixing with the lime, or a good handful of flowers of sulphur may be mixed with each pailful of limewash. The sulphur will give off some fumes under the action of the sun, which are inimical to mildew. The border may also be sprinkled with the sulphate of iron solution, a 3-gallon wateringcanful being sufficient for 90 $\frac{3}{4}$ square yards. House sewage would not produce mildew, but in excessive quantity, and applied cold, might favour its development. The blue mould on the cuts indicates a damp atmosphere, and possibly this is the only mildew that has infested the Vines. Indeed we have a strong suspicion that this so-called saprophyte is a parasitic fungus on Vines, as we came across some last year producing growths or conidia bearing hyphae from living tissue. It would be advisable to keep the Vines rather dry as regards syringing, and use the sulphur on the hot-water pipes very carefully, as it may produce rust in the berries, which is quite as bad as mildew for spoiling Grapes.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (G. E. W.).—Epidendrum vitellinum, good form. (R. D. J.).—1, Senecio Ghiesbreghtii; 2, Cardamine hirsuta; 3, Helleborus olympicus; 4, Daphne Mezereum. (F. G.).—Rhododendron fragrantissimum. (R. B.).—1, Odontoglossum luteo-purpureum; 2, Dendrobium nobile nobiliss; 3, Cattleya Percivaliana. (H. R. M.).—1, Doodia caudata; 2, Adiantum capillus-Veneris; 3, Polypodium pedatum. (Sunbeam).—A, Acacia pulchella; B, A. Drummondii.

COVENT GARDEN MARKET.—MARCH 27TH.

TRADE and prices remain substantially the same as before.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per half sieve ..	1	6 to 4	6	Grapes, per lb.	1 6 to 3 6
" Nova Scotia, per				Lemons, case	10 0 15 0
barrel.. ..	10	0	21 0	St. Michael Pines, each ..	2 0 6 0
Cobs, per 100 lbs. ..	20	0	21 0		

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb. ..	1	6	to	2	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0		0	0	Onions, bushel	3	6		4	0
Carrots, bunch	0	3		0	4	Parsley, dozen bunches ..	2	0		3	0
Cauliflowers, dozen	3	0		6	0	Parsnips, dozen	1	0		0	6
Celery, bundle	1	0		1	3	Potatoes, per cwt.	2	0		4	0
Coleworts, dozen bunches	2	0		4	0	Salsafy, bundle	1	0		1	5
Cucumbers, dozen	2	0		5	0	Seakale, per basket	1	6		2	3
Endive, dozen	1	3		1	6	Scorzonera, bundle	1	6		0	0
Herbs, bunch	0	3		0	0	Shallots, per lb.	0	3		0	0
Leeks, bunch	0	2		0	0	Spinach, bushel	0	0		0	0
Lettuce, dozen	0	9		1	0	Tomatoes, per lb.	0	2		0	6
Mushrooms, punnet	0	9		1	0	Turnips, bunch	0	3		0	4

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

AVERAGE WHOLESALE PRICES.			FOR THE WEEK ENDING			AVERAGE WHOLESALE PRICES.			FOR THE WEEK ENDING		
	s.	d.		s.	d.		s.	d.		s.	d.
Arum Lilies, 12 blooms ..	2	6 to 3	0	Roses (indoor), dozen ..	0	6 to 1	0				
Azalea, dozen sprays ..	0	6	1	0	" Tea, white, dozen ..	1	6	2	6		
Asparagus Fern, per bunch	2	0	3	0	" Yellow, dozen ..	2	0	3	0		
Bouvardias, bunch ..	0	6	1	0	" Safrano (English),						
Carnations, 12 blooms ..	2	0	3	0	dozen ..	2	0	3	0		
Daffodils, (dbl.), doz. bchs.	3	6	6	0	" (French), yellow, doz.						
" (single), doz. bchs.	4	0	6	0	blooms ..	1	6	2	0		
Eucharis, dozen ..	4	0	6	0	" (French), Red, dozen						
Gardenias, dozen ..	4	0	6	0	blooms ..	2	0	2	6		
Geranium, scarlet, doz.					Smilax, per bunch ..	4	0	6	0		
bunches ..	6	0	8	0	Tuberose, 12 blooms ..	0	4	0	6		
Lilac (French) per bunch	5	0	6	0	Violets (English), dozen						
Lilium longiflorum, dozen	4	0	6	0	bunches ..	1	6	2	6		
Marguerites, 12 bunches ..	1	6	3	0	Violets (French), Parme,						
Maidenhair Fern, dozen					per bunch ..	3	0	4	0		
bunches ..	4	0	6	0	Violets (French), Ozar, per						
Orchids, dozen blooms ..	1	6	12	0	bunch ..	2	0	4	0		
Pelargoniums, 12 bunches	6	0	9	0	Violets (French), Victoria,						
Primula (double), dozen					dozen bunches..	2	6	4	0		
sprays ..	0	6	1	0							

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (golden) dozen	6	0	to 12	0	Ferns (small) per hundred	4	0	to 6	0
Aspidistra, dozen	18	0	36	0	Ficus elastica, each	1	0	7	0
Aspidistra, specimen plant	5	0	10	6	Foliage plants, var., each	2	0	10	0
Azaleas, each	3	6	4	0	Genistas, per dozen	9	0	12	0
Cinerarias, per doz.	9	0	12	0	Hyacinths, dozen	9	0	12	0
Cyclamen, dozen	9	0	12	0	Lycopodiums, dozen	3	0	4	0
Dracæna, various, dozen ..	12	0	30	0	Marguerite Daisy, dozen ..	9	0	12	0
Dracæna viridis, dozen ..	9	0	18	0	Myrtles, dozen	6	0	9	0
Erica, various, dozen	9	0	18	0	Palms, in var., each	1	0	15	0
Euonymus, var., dozen	6	0	18	0	" (specimens)	21	0	63	0
Evergreens, in var., dozen	6	0	24	0	Primulas, dozen	4	0	6	0
Ferns, in variety, dozen ..	4	0	18	0					



STRUGGLING FARMERS.

DICTIONARY definitions of struggling are singularly appropriate in reference to the efforts of farmers to overcome difficulties that are an outcome of circumstances beyond their power to prevent or even to control. Here are some of them. To use great efforts, to strive, to contend, contest, effort to obtain an object, or to avoid an evil. These are generally applicable, and wherever full force has been given in the struggle to the pithy sense which they embody, in combination with judicious change, such earnest efforts have been rewarded by success, which if not full and entire, has at any rate staved off actual failure.

Any effort in this direction is worthy of the attention which it commands, very much in proportion to the degree of success obtained. It is so especially because there is no panacea, no general method of action, no single crop that can take the place of Wheat. If there were, our difficulties would soon be at an end. Instead of resting on its old broad basis, and retaining its clear lines of demarcation between dairy and corn farming, agriculture is now split up into sections or groups in accordance with local requirements, or the prospects of a profitable market for special farm produce. A wise man is he, surely, who, bowing to the inevitable, sets himself to obtain a clear grasp of the situation and its possibilities, and then resolves to adapt his practice to the change which has been forced on him. Had this been done—perhaps we shall do well to say, Had it been possible for ordinary farmers to have done this more generally, there would have been less of distress, less of failure. But such efforts to be successful must be an outcome of more than ordinary ability, springing as they do from a combination of shrewdness, energy, enterprise, and in some instances certainly from a spirit of adventure, tempered by caution.

Let it not be supposed that the immigration of Scotch farmers to south eastern counties was undertaken without due inquiry and deliberation. At the very beginning of the movement it fell to our lot to go over several East Anglian farms with a certain Scotch deputy—one of a group of Scotch farmers intending to come south. The searching inquiry and cross-questioning we had to undergo in connection with the inspection was certainly an experience, and if any of them went wrong subsequently it was not for lack of due precaution.

In connection with this the recent lecture delivered in Glasgow by Mr. Allan C. Young, who came south and settled in Hertfordshire, is both interesting and instructive. He told how Hertfordshire farmers, having sufficient capital, and paying 30s. an acre inclusive of tithes and rates, were doing well; but he insisted on the absolute necessity of sufficient capital. To take a farm of 400 acres with only enough capital for 200, was the direct way to disaster. With a holding well within the scope of his means, at such a rent, the Hertfordshire dairy farmer was, he said, more prosperous than farmers in the west of Scotland. Most of the farmers forming the "Scotch colony" in Hertfordshire have sufficient grass for from forty to 100 cows. Contracts for the milk are made for the summer and winter with London dairy companies or milkmen. The prices mentioned were, for the summer 1s. 2d. per barn gallon, or a shade less than 7d. per imperial gallon, carriage paid to London; and for winter 1s. 7d. per barn gallon. Mr. Young said the winter milk paid best. When he was farming he had an average of 1s. 8d. per barn gallon all the year round, and the profit from his dairy of fifty cows

for the twelve months was £253, or say £5 per cow. This is satisfactory so far as it goes, but the lecturer then went on to the profits of the middleman, saying that for every £100 paid for milk by the consumer £40 only went to the producer, the middleman absorbing £60.

After making due allowance for the risk of bad debts and other losses of retailers, he pointed to the farmers' risk of disease and death among his cattle, and to the aberrations of weather as being as great. The retail trade has gone from the farmer to his serious loss. Single-handed he is powerless to touch it; only by co-operation on a large scale, and in a thoroughly systematic manner, would it be possible to wrest it from the keen retailers, who are now in such active competition for the easily earned profits poured daily into their hands by the heedless, easy going, grumbling producer. We shall return to Mr. Young's lecture in another article.

WORK ON THE HOME FARM.

Small, late-sown Swedes, came through the weeks of 20° or 30° of frost practically unscathed; it was the large, earlier-sown roots that suffered. Of course large roots ought not to be exposed to such risk of harm from frost. Hay, too, is abundant, and with present prospects of rapid growth there should be no difficulty in keeping up condition in store cattle and milk yield in dairy cows.

Glad were we to find that Lucerne had due prominence given it in Mr. Martin J. Sutton's paper, read recently before the Farmers' Club. He recommends drilling 20 lbs. of seed per acre in rows 6 or 8 inches apart in April, and not later than July, or four months, for choice. We have found the earlier sowings answer best, and though some of the highest authorities advise sowing broadcast under exceptional conditions, we never do so, because the crop then becomes so foul with weeds as to be worthless in a year or two. Drill Lucerne wide enough apart to admit of a free use of a horse-hoe between the rows; take especial care to drill in soil free of perennial weeds; hand-hoe two or three times at the outset, and subsequently there should be no difficulty in keeping down weeds.

Mr. Sutton's advice to mow the Lucerne three times, and to fold ewes on the weaker fourth growth, is excellent. Every home farm should have its field of Lucerne near the homestead wherever it is possible. Certainly its culture should not be abandoned till the soil has had a fair trial. Often have we expressed surprise that this splendid fodder crop of such enormous bulk, so persistent in growth, so unaffected by drought, is not in more general cultivation.

Lent corn, as well as fodder crops, has been got in with ease, in a splendid seed bed, the soil, ploughed in the autumn, breaking down fine as coal ashes under the harrows, the drills working so true that seed germination will be speedy, growth quick, and a full, even plant, a certainty.

METEOROLOGICAL OBSERVATIONS.

OAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1895.	Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
March.		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday .. 17	30.307	45.3	42.4	N.	40.0	54.3	38.2	68.9	31.9	—
Monday .. 18	30.232	36.2	36.2	N.	38.9	58.2	30.6	82.8	26.1	—
Tuesday .. 19	30.053	43.1	41.1	W.	38.9	54.2	35.2	73.0	30.1	0.051
Wednesday 20	29.841	50.3	48.9	N.W.	40.4	57.0	44.1	83.9	43.8	0.091
Thursday .. 21	29.966	47.9	47.6	N.W.	41.9	60.9	43.1	85.9	42.5	—
Friday .. 22	29.966	49.1	47.2	N.	42.2	63.7	38.8	102.6	31.9	—
Saturday .. 23	29.964	48.4	46.4	W.	42.9	56.9	38.8	97.3	32.4	0.086
	30.047	45.8	44.3		40.7	57.9	38.4	84.9	34.1	0.228

REMARKS.

17th.—Slightly foggy the greater part of the day.
 18th.—Fog rather thick till about 10 A.M.; bright sunny day.
 19th.—Overcast all day; spots of rain after 5 P.M., and showers in evening and night.
 20th.—Overcast and mild with spots of rain in morning; frequent sunshine in afternoon; dull and drizzly after 6 P.M.
 21st.—Frequent rain in small hours, and dull and drizzly all morning; sunshine all afternoon.
 22nd.—Unbroken sunshine from sunrise to sunset.
 23rd.—Alternate cloud and sunshine in morning, cloudy afternoon; rain in night.
 Fine mild week, with temperature above the average. It seems difficult to believe that only a few weeks back the maximum temperatures were far below the recent minima. The following shows how rapid the rise of mean temperature has been.

MEAN TEMPERATURE OF WEEK ENDING

February 9th, 22.4°.	March 9th, 37.1°, a rise of 14.7°
" 16th, 26.1°, a rise of 3.7°	" 16th, 43.1° " 20.7°
" 23rd, 34.4° " 12.0°	" 23rd, 43.2° " 25.8°
March 2nd, 36.7° " 14.3°	

—G. J. SIMONS.

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Journal of Horticulture.

THURSDAY, APRIL 4, 1895.

EARLY FORCED VINES.

THE modern system of growing thick-skinned Grapes for keeping till May or June has rendered the practice of forcing Vines very early almost obsolete, there being few places in which they are started before the new year to afford ripe Grapes by the close of May or early in June. This is a decided advantage so far as the very early forcing of permanent Vines is concerned. Canes making their growth at the dullest period of the year, as must be the case with those started in November to ripen their crops in April or even in May, severely taxes the energies of the Vines, especially after a few seasons.

This may not happen until they have done good service, but it does occur too soon for the profitable production of very early Grapes from planted-out Vines, therefore the potted system is resorted to. Of course, there is nothing new in growing Vines in pots to afford ripe Grapes in April, for it is mentioned by Abercrombie over a century ago, also the forcing of Peaches and other fruit trees in pots, and was carried on successfully by the aid of fermenting material, and fire heat on the flue system of heating. Hot-water heating is, however, most in touch with present requirements, and readily answers every purpose.

The originator of the very early system of forcing young Vines in shallow and narrow beds may be untraceable, but it is not by any means a new method as regards permanent planted Vines, having been practised on the Continent for centuries by means of fermenting material, and in this country in some places by those means and auxiliary aid from fire heat. This, however, is not the point, for Vines will grow almost anywhere where there is a sufficiency of heat, and often much better with scanty fare than high living. The question is that of growing in pots for affording ripe fruit in late March or early in April as compared with those planted out in shallow and narrow beds, fruiting them once and then throwing away.

This is the greatest drawback to the potted as to the annually planted system, as the rearing of the Vines requires two years, and then another for fruiting. Vine eyes rooted one year are not

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safe for fruiting the following. Cut-backs only can be relied on, and these must be started early to make the desired growth and ripen it for satisfactory cropping. Vines in pots can be prepared in half the room of those planted, an excellent place for the former being a lean-to pit with about 9 feet of trellis, the pots being stood on slate shelves resting on the hot-water pipes. This is all very well so far, but the Vines in pots are one thing and planted out canes another. We secure a Vine by the potted system capable of producing six to eight bunches of Grapes, averaging $\frac{3}{4}$ lb. each, and the production seldom exceeds 6 lbs. per Vine.

This is the highest average for Vines started at the beginning of November and ripening the Grapes in late March or early in April. The cost of production is nearly double by the potted system as by the planted, for canes in pots require watering much more frequently, and more nutrient matter escapes from the pots than is retained by the soil. Where labour is no consideration, or in other words where the expenses have not to be curtailed to the lowest possible point, this is not material, but apart from this the results are consequential, as there is as much room needed for fruiting Vines in pots as for those planted.

The planted method requires a house with a south aspect, a lean-to or three-quarter span of 9 or 10 feet width. It may be partly sunk in the ground and have roof lights only. Wooden ventilators in front, opening on the hot-water pipes or below them, are an advantage, and with the usual top ventilation is all that is necessary. Four rows of hot-water pipes in front and two at the back afford the requisite top heat. The bed need not exceed 4 feet in width, the walls being taken up 9 inches thick to within 15 inches of the top, which should be about 18 inches below the front wall plate, the upper 15 inches, being $4\frac{1}{2}$ inches brickwork in cement. This will form a ledge on each side, and a $4\frac{1}{2}$ inch wall up the middle, built pigeon-hole fashion, of corresponding height, form the requisite rest for the slate or stone covers. In this chamber, which should not be more than 9 inches deep, two rows of 4-inch pipes, raised clear off the floor and not touching the cover, should be fixed. An inch of clean rubble being placed on the covers and 2 inches depth of old mortar rubbish, such as remains in a half-inch sieve after sifting out the small, affords the requisite drainage, and a thin layer of turves, grass side downwards, makes the drainage secure against clogging. This leaves a depth of 1 foot for soil, and a ridge of $2\frac{1}{2}$ feet base and 18 inches top breadth along the front, answers for planting in. Good turfy loam five parts, old mortar rubbish one part, and half part each wood ashes and charcoal "nuts," form a suitable compost. If the loam be poor add a part of fresh horse droppings, and about a pint of some approved fertiliser may be allowed to each barrowload of loam. When warmed through the cut-back Vines should be planted, they having been started in January and forwarded for turning out by early February, the long roots being shortened, as it is not bare roots but fibres that are required. The way to secure these is to grow the Vines in turves about 9 inches square and 6 inches deep, cutting the roots extending beyond the turves two or three times during the previous summer to planting, as this insures an abundance of fibrous root formation which is very essential, or grow in 6-inch pots in firm soil and water moderately for a time.

The canes should be placed $2\frac{1}{2}$ feet apart, and always have any corkscrew-like roots cut back. The Vines will spread rapidly in a suitable temperature—namely, 60° to 65° at night, 70° to 75° by day, and 10° to 15° rise from sun heat, with a genial atmosphere secured by damping the house two or three times a day, and keeping the compost properly moist. Soil must be added to the ridge as the roots show at the sides, and thus supplied they will occupy every inch of it and form numberless fibres provided it be rammed firmly. The canes can be trained 1 foot from the glass, the nearer the leaves are to it, provided they do not touch, the

better. Stop the laterals to one leaf, and sub-laterals in like manner, pinching out the points of the canes at 9 feet, or 1 foot from the extremity of the space.

By June the Vines are as thick as walking sticks and the buds prominent, so that it becomes a question of ripening the wood and plumping the buds, which is sure to happen in the heat of the summer, and the leaves will fall as the growths mature, which can be accelerated by reducing the laterals gradually. Care, of course, must be taken in reducing the lateral growths so as not to start the buds in the axils of the principal leaves, and with this precaution the sooner they are removed after the wood commences to ripen the better. With complete control over the roots, as this system affords, resting can be effected readily, but it should not be induced by flagging, but by diminished supplies of water and atmospheric moisture. The Vines should not be allowed to become too dry during the resting period, and will not start with moderate root moisture if abundance of air be admitted day and night, especially during the latter part of the month of August and through September and October.

When the leaves are all down the Vines should be pruned. This consists of cutting off the end of each Vine to the first plump bud below the stopping of the canes in the first instance, leaving a length of about 8 feet 6 inches. On November 1st forcing can commence in earnest, for the Vines need no preparatory process beyond cleansing the house, washing the canes with tepid softsoapy water, and moistening the soil evenly through. A bottom heat of 60° to 65° and top heat of 55° till the buds start is ample, then gradually raise the former to 70° and 75° , and the latter to 60° and 65° at night, and 70° to 75° by day by the time the Vines are in leaf. The bottom heat causes root action in advance of top growth, and this should be assisted by additions of fresh soil. Thus sturdy well-developed leaves are formed, instead of the puny leafage of potted Vines. Every planted Vine has 10 feet of soil surface available for feeding purposes, and as many cubic feet of rootage. This means something in the shape of results, other conditions being favourable—say six bearing shoots on each side of the cane at 15 inches apart, or twelve bunches per Vine, and all over 1 lb. in weight.

These results double those of the very best early forced Vines in pots, while there is no comparison of the two for appearance, size of berry, and finish.

The early varieties only are available for forcing, Black Hamburgh and Foster's Seedling being perhaps unequalled for this purpose, though there is far too many of this class of Grape grown, and too few of Madresfield Court and Muscat of Alexandria for the requirements of the London season. The Vines may be kept a second year for fruiting, but it is not the way to produce anything better than very early forced potted Vine Grapes, which are too small in both bunch and berry to meet acceptance at the hands of those caring only for sterling value. It is better, therefore, to crop the Vines once and throw them away. This necessitates the employment of two structures and takes all the "gilt off the picture." The same thing is essential for potted Vines, which are readily moved from place to place, and, as a consequence, often receive checks and treatment the reverse of beneficial. Attempting too much usually results in the indifferent performance of the subjects. The structures must be kept for the Vines, no other plants being allowed to interfere with them in any way. There is space in the first year for raising Tomatoes for planting in other structures during the spring and early summer months; the back wall of the house will be available for bearing plants of these in the preparatory year, and in the season of bearing strong Tomato plants can be planted in the bed after the Grapes are cleared without any change of soil, as Tomatoes are an excellent rotation crop after Vines, so that there is really no waste of space or time, but two of the easiest-grown crops in the most remunerative form are duly catered for by a straightforward and practical method.—G. ABBEY.

CARNATION NOTES.

I HAVE just returned from a two-months stay on the Continent, and find, as was only to be expected, that the unusually severe winter has greatly damaged some of my seedlings, but it has left others wholly uninjured, and I venture to offer to your readers the results of my experience.

I had several classes of seedlings, some from seeds sown in August, 1893, immediately after it was harvested. These were kept through the winter of 1893-1894 in small pots in cold frames, and planted out in what I hoped would be their flowering quarters towards the end of April last year. They were kept well pinched back, and when I left England in January were large bushy plants in the perfection of health and vigour. I came back to find them nearly all dead; indeed I do not believe that more than 4 or 5 per cent. will survive and flower this summer.

Side by side with these were a number of plants from seeds harvested in 1893, and sown in March last year. These were planted out late in May—that is, as soon as they were sufficiently large.

Nothing could be more striking or instructive than the contrast they presented—hardly any of them dead (not above 2 or 3 per cent.), and the vast majority of them entirely unaffected by the terrible winter they have passed through.

The irresistible conclusion therefore is strongly in favour of spring as against autumn sowing for plants that are to be wintered out of doors. I believe it will be found that seeds sown in the autumn produce plants too far advanced and too “woody” to stand severe frost—indeed, many of these plants would have flowered last autumn had they not been kept pinched back.

The experience reminds me strongly of an attempt I made some years ago to grow on layers without allowing them to flower, through a second winter, in the hope that the following season they might give a larger supply of bloom. The experiment was equally unsuccessful, and most of the plants died during the second winter, which was a hard one.

I have had a third class of seedlings under different treatment. Sown in March last year they were planted out temporarily, and in October last were moved into their flowering quarters, which had not been ready for them earlier. These plants have suffered very much, and contrast most unfavourably with those which were planted out early last summer, and have not since been moved.

Last year's layers, even of my new Malmaison varieties, seem little if any the worse for the winter.—MARTIN R. SMITH, *Hayes, Kent.*



BOLLEA SCHRÖDERIANA.

AMONGST the novelties shown at the Drill Hall, Westminster, on the 26th ult., was a splendid plant of *Bollea Schröderiana*, carrying several blooms, one of which is depicted in the engraving, fig. 50. The sepals and petals are pure white with the exception of a very faint blush tint at the edge, while the lip, which is of a peculiar form, is rosy purple. Another point in favour of this plant is the delightful fragrance emitted. It was exhibited by Messrs. F. Sander & Co., St. Albans, and received a well-merited first-class certificate from the Orchid Committee of the Royal Horticultural Society.

BRASSIA LAWRENCEANA.

It has been pointed out to us by Mr. Adolphus H. Kent, Chelsea, that the Orchid we figured under this name at page 275 of our last issue is not *B. Lawrenceana* at all, but a form of *B. bracteata*. Our sketch was, as stated in the last issue, taken from a plant staged by R. I. Measures, Esq., and labelled *B. Lawrenceana*. As such it was certificated by the R.H.S. Orchid Committee, and if it was really *B. bracteata*, it was clearly an oversight to give an award to the plant without, at any rate, first correcting the nomenclature. In Veitch's "Manual of Orchidaceous Plants," vol. ii., pages 124-5, some interesting particulars are given of *B. Lawrenceana*, in the course of which it is stated that this Orchid is only known by figure and description. We should be glad of Mr. Chapman's opinion on the subject.

MASDEVALLIAS OF THE CHIMÆRA GROUP.

THESE extraordinary Orchids have a wonderful fascination for most cultivators, and if once their culture is taken up with

spirit one never seems to tire of them. A friend to whom I was showing some dried flowers recently somewhat laconically described them as the most wonderful of a wonderful family, and certainly no one can fail to be struck with their fantastic forms or singularly effective colouring. No particular difficulty will be found in growing this section providing their wants are anticipated and attention given to a few simple details.

The house in which they are growing must be kept at as uniform a temperature as possible all through the year. During the summer they must be heavily shaded and a free circulation of air kept up about them. The temperature during this period ought not to rise above 70° if it can be avoided, and the atmosphere must be loaded with moisture. The roots are always active, and must never be dry, or the plants will be weakened, and during summer they must be kept moist almost to saturation.

As the season advances and the sun begins to wane, the plants may be inured to rather more light, but avoiding scorching of the



FIG. 50.—BOLLEA SCHRÖDERIANA.

foliage by exposing them to the sun's direct rays. In the winter they must have the lightest position available, and the full day and night temperature maintained. When very cold fire heat must be turned on sufficient to keep the house at, or near 50°, but the atmosphere must be softened by frequent dampings, or thrips will make their unwelcome presence known by the whitish irregular marks all over the foliage and flowers. If they do put in appearance no time must be lost in effecting a clearance of them, for if left alone for a few weeks they obtain a firm hold on the plants, and owing to their marvellous fecundity, are most difficult to eradicate.

The majority of this group are best grown in shallow wood baskets suspended, as this insures a better circulation of air in summer, and clearer light in winter than when they are grown in pots on the stages. Some large pieces of charcoal may be placed over the bottom rods of the baskets, as the roots like to entwine about them, and it also allows the scapes of those that flower downwards to find their way through the bottom easily. Three parts of clean peat, sphagnum moss to half a part of peat and half of potsherds will be found a good compost; the sphagnum must be kept growing about the roots and the bases of the stems all the year round. If the *Odontoglossum* house is kept from falling below 50° this is by far the best place for the plants during winter, but if, as is unfortunately too often the case, this house is allowed to range between 30° and 40°, then the plants must be removed to warmer quarters, which are, however, usually too dry for these moisture-loving and very sensitive Orchids.

The flower scapes of many of this group produce three or even four flowers in succession, so that it is better not to remove these so long as they are fresh. The typical *Chimæra* grows about 9 inches high and bears leaves 1½ inch broad. The flowers appear at different times in the year from the base of these; the sepals are

about an inch across at the base, concave, the ends narrowing to a caudate point about 6 inches from the base. Inside these are hairy, the ground colour yellow, with irregular blotches of red and purple. The petals and lips are comparatively insignificant, white, the latter slightly protuberant, and serrated on the upper edges.

M. Backbousiana is said by some authorities to be a variety of the last named. They are very similar species at all events, the chief difference being in the larger, brighter coloured flowers of *M. Backbousiana* and the longer, more narrowed lip. *M. bella* is a remarkable and beautiful species, bearing its flowers singly on their pendent scapes. The tails of the sepals are about 4 inches in length, greenish yellow, thickly spotted about the triangular bases with reddish purple. This blossoms in the autumn and early winter. *M. Chestertoni* grows about half a foot high, and also blooms in autumn. The flowers are smaller than those named above, and quite distinct, the petals cuspidate, yellowish with purple dots, lip dull red. *M. Nycterina* is often met with under the name of *M. Chimæra*. It is, however, quite distinct, being dwarfer in habit and bearing smaller flowers, tails 4 inches in length, brown with blackish or deep purple spots on the broad portions. The lips and petals as in the last named kind. These are all natives of the mountainous regions of Equatorial America, and are the best known of this section. *M. erythrochaite*, *M. macrura*, *M. Houtteana*, *M. Roezli*, and *M. Wallisi* are all interesting and beautiful plants, well worthy of the best care that can be bestowed upon them.—H. R. R.

SEED SOWING.

THE late frost penetrated to a depth of 2 feet in places, and it may be well to remember that it must take the sun a considerable time to raise the temperature to its normal height. Last season was most unfavourable for the proper maturation of various seeds, and not a few will fail to germinate in a low temperature. Many old seeds will be distributed, especially among those who go in for cheapness, and these will be at a disadvantage when sown in a cold soil. We all ought to know that quite new, perfect seeds germinate the most quickly and strongly, and the plants resulting are rarely equalled by those coming from old seeds, but in either case not a little depends upon the treatment.

William I., and the various round-seeded early varieties of Peas that were sown as soon as the frost departed may succeed, but the dwarf early wrinkled seeded varieties, and the taller growing Marrow Peas, if sown then, should be examined. If found sound and beginning to sprout no mistake will have been made, but if many of them give signs of perishing no time should be lost in sowing more seeds, and it may even be desirable to sow in pots to prevent a break in the supply. They will transplant readily, and the crops will be materially advanced. At Hatfield Mr. Norman grows an extraordinary breadth of the Dwarf Chelsea Gem every season, a peck or more of seeds being used, and this excellent variety is also extensively grown at Longleat by Mr. Trollope. In both instances many rows are planted out, and under high culture—that is to say, with the aid of well worked, very freely manured borders, this variety attains a height of from 2 feet to 3 feet, and produces enormous crops. Very early sown Broad Beans, hard as they look, often perish in a cold wet soil. It will be well to examine them, and act accordingly.

Kidney Beans are naturally delicate, and though we may have much warm weather before the end of April it may yet be advisable to defer sowing in the open till the end of the first week in May, the earliest rows being formed by plants turned out of pots or boxes late in that month and roughly protected. Runner Beans succeed well under similar treatment. The seeds of these are so liable to fail when sown too early that I counsel keeping them out of the ground till the middle of May, the plants thereby obtained also escaping May frosts.

Onion and Parsnip seeds do not often perish in the ground owing to its coolness. By far the best results, however, attend the exhibitor's practice of raising a few hundred plants of Onions in boxes. These small plants scarcely feel the check of removal. Instead of a few hundreds, thousands of plants should be raised under glass, as they take up very little room, and there would be fewer failures from Onion maggot and mildew. At Mentmore, Mr. Smith grows remarkably fine crops of Onions on the ridges between Celery trenches, double rows on each being planted out. What is done so well in this case ought generally to be imitated. Choice or even ordinary varieties of Onions might yet be sown in pans or boxes and placed in heat with every prospect of a gain of a fortnight. With regard to Parsnips very early sowing is a mistake, unless in the event of some extra fine roots being required for summer shows. Good serviceable crops can be obtained by sowing at the present time and the middle of April is soon enough for

sowing the main crop of Carrots, also Beet, Salsafy, Scorzonera, and Chicory.

We are frequently advised to sow Chou de Burghley early in March, whereas the best time to sow seeds of this winter vegetable is late in April or early in May. Sown much earlier the plants grow to a great size, and the hearts are apt to become much too coarse. Half the seeds of Broccoli distributed in this country are sown too early. Where is the sense of raising hundreds of plants much earlier than the ground can be got ready for their reception? Sow the main and late crops late in April or the first week in May rather than a month or six weeks earlier. Borecoles and Brussels Sprouts require a long period of growth, and in all cases where room can be found for them raise the plants under glass or in a warm border, and get them out early. Not so Savoys. Treat them as advised in the case of Chou de Burghley, and thereby avoid waste and coarseness. Nor ought Tomatoes and Vegetable Marrows to be sown so long before they can be planted out, as generally advised. Starvelings turned out of small pots are a long time in recovering from the check given them. From a month to six weeks is time enough for raising the former, and three weeks ample for the latter.—W. IGGULDEN.

THE FLORISTS' TULIP.

[By JAS. W. BENTLEY, Hon. Secretary to the Royal National Tulip Society.]

CHAPTER VI.—CONTINUED.

(Continued from page 203.)

AS five or six years must elapse before the seedling raiser can see any result of his labours in the form of bloom it is of the highest importance that every care should be taken that he starts well. To start well he must have bestowed considerable thought on the selection of the varieties he intends to use as the parents of his seed, and he must have used every care that his cross-fertilisations have really been carried out in accordance with his wishes. It is hardly necessary to say that chance-saved seed is of no value at all, and should never be used, for the chances are that the only result would be a crop of mongrels, and the grower's disappointment would be intensified by the thoughts of the years wasted (as far as they were concerned) in their production. I do not deny that occasionally a good variety has been raised from chance-fertilised seed, for our most prominent bizarre, Sir Joseph Paxton, is said to have come from a casual pod of seed borne by a plant of Trafalgar, an old-time long-cupped red bizarre; but such a case is so rare as practically to be the exception that proves the rule. As an instance of the value of careful cross fertilisation, my friend the late Mr. Lakin informed me that he was present in Storer's garden when the latter fertilised a bloom of Pilot with the pollen of Shakespeare. Such care was taken on this occasion that from that famous pod of seed nothing but bizarres bloomed, and they were such improvements on what had been grown before that they threw out of cultivation nine-tenths of the bizarres which had formerly been highly prized, and although it is over thirty years since they made their appearance they still hold their own as some of the best bizarres in cultivation.

The length of time which must pass before Tulip seedlings bloom has doubtless deterred many persons from attempting to raise them. I fail to see why this reason should be held good, for although life is at the best uncertain, it is nevertheless quite certain that raising seedlings will do nothing to shorten it, but give it an added interest, and one of its best of pleasures, that of anticipation. Should the grower be gathered to his fathers before his seedlings bloom or break, yet in other hands they may serve to keep his memory green for many a long year.

There is not much difficulty in getting seed from the Tulip, for the parts of reproduction are so prominent, and the flower guards them so well, as to be a notable example among botanists. At night, or in bad weather, the petals shut so closely together that sooner will the stem be broken by the wind than the petals separated, and the formation of pollen thus injured or retarded, although when the weather is genial they open readily, so that the sun may mature the parts necessary to the formation of the seed. When the impregnation of the stigma has taken place the petals fall off and decay, leaving the seed pod to benefit by all the nourishment the stem affords, and to enjoy the light and air uninterrupted by their presence.

In actual seedling-raising I prefer to use breeders when possible for seed bearers, as they are as a rule sturdier and more robust than rectified flowers and bear finer pods of seed, and to take pollen from well marked rectified flowers. In my opinion it is important that seedlings should be raised only from such varieties as are known to break well, and have some special merit which it is desired to retain in an enhanced form in the seedling. It is unwise

to cross two varieties each of which shows prominently the same defect, for fear that the resulting seedlings may exhibit the defect in a more marked degree than their parents, and I think that seed should not be obtained from varieties dull and undecided in colour, flimsy of petal, or impure in any way. It is very important that roses should be crossed only with roses, byblœmens with byblœmens, and bizarres with bizarres, and it is well to divide the bizarres, and to cross reds with reds, and darks with darks. I think it is wise also to consider the relationship of the varieties it is proposed to cross-fertilise, and to choose for the purpose those that have been raised by different growers, as I feel sure a stronger progeny is the more likely result if near relationships are avoided. Perhaps a few instances will make my meaning clearer. I should not cross Dr. Hardy (Storer) with Orion (Storer) because, although two good red bizarres, they are probably raised from the same pod of seed, and therefore too nearly related; I would not use Talisman (Hardy) and Maid of Orleans (Gibbons) because, although from different raisers, they both exhibit the fault of being rather long cupped. I should reject Goldfinder (Hepworth) because, although a brilliant breeder, it invariably breaks badly; Lord Lilford because, although of good form and a handsome feather, it is scarcely ever pure, and Lord Derby (Clegg) because, although handsome in colour and excellent in shape, it has flimsy petals and never breaks well.

Improvements in colour should be an important object with the raiser, and he should endeavour to get the roses more scarlet, the byblœmens blacker or more deep violet, the dark bizarres blacker, and the red bizarres more orange-scarlet in their marking colours than has hitherto been obtained, whilst his aim for the ground colour should be a dazzling opaque white for the roses and byblœmens, and clear brilliant yellows for the bizarres, which may vary from a lemon to orange colour in shade. In the following list of suitable crosses I have had regard to the ideas I possess on this subject, and it may be found useful.

Roses.

Rose Hill × Annie McGregor	Annie McGregor × Circe
Rose Hill × Modesty	Mabel × Rose Hill
Mary Jackson × Annie McGregor	Rose Hill × Mrs. Lea

Byblœmens.

Talisman × King of the Universe	Elizabeth Pegg × King of the Universe
Queen of the May × King of the Universe	Elizabeth Pegg × Talisman
Talisman × Queen of the May	Queen of the May × Adonis
Chancellor × Salvator Rosa	Bessie × Elizabeth Pegg

Bizarres.

Dark.

Sir Joseph Paxton × Wm. Lea.
Masterpiece × Lord Stanley
Sir Joseph Paxton × Polyphemus
William Wilson × Lord Stanley

Red.

Dr. Hardy × Sulphur
Dr. Hardy × Lord Fredk. Cavendish
Dr. Hutcheon × William Annibal
Dr. Hardy × General Grant

Some of my readers may smile at the idea of bringing back old Polyphemus at this time of day, but I do so in order to get if possible his clear lemon and black, which combination is not at all common in our modern flowers.

The flowers destined to bear the seed pods should be selected before they open, and immediately they do the anthers entirely removed. At this stage the pollen, not being yet ripe, will be invisible on the anthers. The flower should then be lightly filled with cotton wool, to prevent chance impregnation by the wind or by bees, and supported by a stick and lead wire. Every fine day the cotton wool should be removed, and the stigma carefully examined; when ready to receive the pollen it will be found covered with a slight viscous exudation, and probably a tiny opening in its centre be observable. An anther covered with ripe pollen should now be extracted from the flower decided on as the pollen parent, and with it the surface of the stigma gently rubbed until it is plentifully covered with the pollen, and the cotton wool immediately replaced. If the pollen has taken effect the stigma will in a few hours have assumed a rosy hue, and have a velvety rather than viscous appearance.

It is important that healthy pollen be used, and only those anthers which are plentifully loaded and are good in size and shape should be selected. It is a good sign if they move about easily on the point or pivot of the filament, as unhealthy anthers are commonly unable to do this, and have a shrivelled appearance. The petals soon fall and the seed pod begins to swell, and sun and air are very essential at this time; but rain or drip should be kept from the growing pod, which is very liable to decay if wet lodges in the corrugated stigma, particularly in damp and ungenial weather. The pods are ready for gathering when they lose their green fleshy look, and show the seeds like ribs through their wasted

sides. It is most important to thoroughly dry the pods immediately after cutting. A good plan is, after tying an identifying label to each, to hang them up in a warm, dry room for at least a fortnight. I have known the seed killed in several fine pods of my own growing through not attaching sufficient importance to drying.

If any mischief is feared from damp, or if any symptoms of mould or mustiness appear about a pod at any time after it has done growing, it is best to open it and turn out the seeds to dry separately, when some may be saved; but it is wonderful how quickly a very slight dampness will destroy the germ of life in every seed in a pod. When perfectly dry the pod is opened, and the seeds, which are flat and of a light brown colour, easily fall out. If they are good the germ is easily seen near that portion of the seed that has been nearest the stem. A fine pod will often contain as many as 200 perfect seeds. The seeds can be stored away in a dry place in envelopes having the particulars of their parentage written on them until the time for sowing arrives.

DOUBLE VIOLETS.

It is questionable if any flowers give more pleasure at any time during the year than double Violets do in the winter. When we consider that Violets can be had with small cost and labour for over six of the dullest months of the year, it seems strange that they are not even more generally cultivated. Double Violets may well be termed amateurs' flowers, as no artificial heat is required at any time during their existence. All that is needed in the way of protection is complete immunity from frost. This can easily be obtained by the aid of an ordinary two-light garden frame, a sufficient amount of long strawy manure or dry leaves to protect the sides of the frame, and an adequate covering of ordinary garden mats for the glass.

The month of April is the right time to prepare the plants for flowering next season. For affording an uninterrupted succession of bloom some persons grow half a dozen varieties. I grow but one, and am well content with it. The best double Violet is, in my opinion, Marie Louise. The colour is described as rich mauve lavender blue, with a white eye. De Parme is also an excellent variety, free and hardy; the colour pale lavender purple, also with a white eye. Neapolitan, lavender, white eye, is appreciated by some, but is too "flimsy" in its blooms, and its flowering season too short to be worthy of more than ordinary attention. Comte de Brazza, pure white, although flowering abundantly in the spring, does not excite much attention, owing to its shyness during the dull winter months. Lady Hume Campbell has somewhat darker flowers than De Parme, though not so rich as Marie Louise; where variety is approved this is worthy a place. Madame Millett, rosy lilac, is most distinct, being very double, fragrant, and free. This Violet succeeds well in pots, which is a good recommendation. Messrs. Beachey, the well-known Devonshire Violet growers, had well flowered plants in pots of it at the Torquay Chrysanthemum show last November. Another striking variety exhibited by the same firm was Duchess of Edinburgh. The flowers are large, rosette-shaped, and not so pale in colour as Neapolitan.

A salient point in Violet culture is thoroughly prepared plants; without these it is not possible to have even a fair crop of flowers. It is not desirable that the plants should make a superabundance of foliage at any period of their growth. Those with a fair number of leaves and well-developed crowns are most sought after by experienced cultivators. These are the result of planting thinly and restricting the growth to the main stems by the prompt removal of runners or side shoots, as then the energy of the plant is concentrated in the crown of each. Our plants are grown on an east border. The soil being heavy leaf mould, not too advanced in decay, leaves are added freely. In heavy soil roots are not made in sufficient numbers to enable the plants to grow large enough to give the best returns. Plants now flowering will by the end of the month be ready for division; the strongest grown roots may be pulled in pieces of one crown each, weaker roots may have two or three crowns together. The runners growing from the base of the old roots make excellent plants, and are preferable, but they cannot always be had in sufficient numbers. The plants are put out 10 inches apart in rows 1 foot asunder.

Keep the soil between the rows well stirred. Should the weather be hot and dry mulch the surface with decayed leaves to prevent the evaporation of moisture and minimise the necessity of watering. Long spells of drought bring a crop of red spider to the leaves, and this checks the growth, and may ruin the plants. Copious supplies of water at the roots, and frequent syringings with soapy water, are the best means of checking the spread of the destructive pest.—E MOLYNEUX.



ROSE SHOW FIXTURES FOR 1895.

- June 19th (Wednesday).—York.*
 „ 20th (Thursday).—Colchester.
 „ 25th (Tuesday).—Isle of Wight (Cowes).
 „ 27th (Thursday).—Gloucester (N.R.S.) and Canterbury.
 „ 28th (Friday).—Exeter.
 „ 29th (Saturday).—Windsor.
 July 2nd (Tuesday).—Diss and Sutton.
 „ 3rd (Wednesday).—Croydon, Ealing, Farningham, and Lee.†
 „ 4th (Thursday).—Eltham and Norwich.
 „ 6th (Saturday).—Crystal Palace (N.R.S.).
 „ 9th (Tuesday).—Wolverhampton.*
 „ 10th (Wednesday).—Chelmsford, Hitchin, and Redhill.
 „ 11th (Thursday).—Helensburgh and Worksop.
 „ 17th (Wednesday).—Derby (N.R.S.).
 „ 18th (Thursday).—Halifax.
 „ 23rd (Tuesday).—Tibshelf.
 „ 24th (Wednesday).—Chesterfield.
 „ 25th (Thursday).—Trentham.

* A show lasting three days. † A show lasting two days.

I shall be glad to receive the dates of other Rose shows than those named above for publication in the next list, which will be issued early in May.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

THE WINTER AND ROSES AT ST. MICHAEL'S.

THOUGH the winter has been more severe here than usual, Camellias, Lilies, Rhododendrons, and Tea Roses have been flowering almost perpetually. I think my present visit to St. Michael's will have helped to make known the best Roses, as some of the leading families have procured the same from England, our best Teas having been there previously unknown.—ALEXANDER HILL GRAY.

A NEW HYBRID ROSE.

MR. JACKSON DAWSON, of the Arnold Arboretum, has raised a hybrid with *Rosa Wichuraiana* as the seed parent, and *Rosa rugosa* as the pollen parent. The plant has the perfectly prostrate habit of *R. Wichuraiana*, lying flat to the ground, but with the vigorous constitution of *R. rugosa*, and large, deep green, glossy leaves. The flowers are, says a transatlantic contemporary, single, nearly as large as those of *R. rugosa*, and of a clear rose-pink colour. If it had no flowers whatever, the lustrous leaves and vigorous habit of the plant would make it desirable.

INFLUENCE OF THE FROST.

IN my recent communication on this special subject I recorded the injuries which had been sustained by the Roses of Messrs. Croll of Dundee. I am gratified to learn from Messrs. Cocker of Aberdeen that they have suffered but slightly from the effects of the severe frost, though their Roses are much exposed. I have just received an interesting letter from this firm, in which they say, "We have escaped wonderfully; some of the more tender varieties are, of course, slightly cut down. Our escape from such a disastrous winter proves what we have always maintained, that Roses grown in an open situation in a severe climate like ours have advantages, for we believe our nursery is the most exposed in the kingdom. We are strongly of opinion that Roses well grown and not pampered or rushed up with chemical manures, but ripened as they grow, are in the best position to withstand a severe frost like that which we have experienced this winter. The frost has been so general that it will test severely the different modes of culture throughout the country."

My own experience is very similar to that of the Aberdeen rosarians. I have in my garden at least 150 distinct varieties of the Rose, and in many notable instances (as in those, for example, of A. K. Williams, Caroline Testout, Duke of Edinburgh, and Gloire Lyonnaise), and though the vast majority were entirely unprotected, not one of them has been killed, while only a few, such as Ethel Brownlow, Thérèse Levet, and Perle des Jardins have been severely injured, but not destroyed. I have always been strongly opposed, like Messrs. Cocker, to the over-protecting of Teas and Noisettes. Had the leading English and Scottish introducers of them, the rosarians of Waltham, Colchester, and Oxford, proceeded on the principle that these required extraordinary attention during the winter to insure safety and prolong their existence, few of them at this moment would have survived the climate to which during January and February they were subjected. "Tea Roses," says a great authority, Mr. George Prince, "are becoming hardier every year; and varieties such as Catherine Mermet and Princess of Wales, which would have been the first to be covered up a few years ago, are now quite as hardy as Hybrid Perpetuals."

Roses, I have observed, are very like children in this special respect: the more they are exposed to every kind of weather the stronger they become. Treat them as if they possessed delicate constitutions, and

under this treatment we shall certainly find that whatever vitality they may have inherited from their parents will speedily disappear.—DAVID R. WILLIAMSON.

ROSE NOTES.

FROM all quarters I have had sad accounts of the late frost. Many and wide are the gaps, while more than one correspondent reports his Roses as practically exterminated. Let us hope it is not so bad as this in any case. Spring planting is being done, but it will not be an easy matter to replace some choice and rather delicate sorts, my intention is to fill up with small pot plants of last season's working. Several lists have come to hand in which these are offered almost as cheaply as plants of the same varieties from the open ground, and I certainly prefer a small quantity of well ripened wood to any which has gone through the past winter outside. We do not secure such large bushes, but the whole of the wood is sound, while the greater quantity of fibrous roots are a great advantage. It is the same with climbers; those scarcely strong enough for forcing are excellent to plant in the open now. With strong growers dug from the open ground we derive no advantage whatever during the first season, simply because the wood is not in conjunction with established roots, and the wood, good as it may appear, will practically have to be cut away to the base. A small plant from a pot will give us a few blooms the same season and still produce excellent growth for the following year.

Before the planting season is over I would like to call attention to a matter often overlooked. We select a variety from a bloom seen, and do not sufficiently bear in mind or inquire into its habit of growth and other characteristics. The result of this is often unexpected, as we find a weak grower placed against a high wall, or as a neighbour to a Rose of extra vigour, and consequently utterly out of place. The latter class must have room if we are to see them to advantage, while the former are altogether out of place in such positions. Medium growers, such as Marie Van Houtte, Madame Lambard, and Madame Falcot will do well against low walls and fences, but when we can have so nearly the same colours with extra vigorous growth it is a pity to use the dwarf growers on high walls and buildings. This matter also needs more attention in the Rose border; in fact, it is unwise to plant Roses so indiscriminately as many do; nor is there any excuse for so doing, as all trade lists inform us on the habit of growth. No doubt this indiscriminate and careless planting has caused more than one grand Rose to be banished from a garden, whereas it might have been grown successfully if a suitable site was selected and room allowed according to habit of growth.

Spring mulching needs attention. I am greatly in favour of this in preference to autumn and summer mulching. It is not theory alone, but long practice that keeps me to this plan. But some little consideration in this matter should be given to the class of soil we are working with, a light and porous soil needing more summer mulching than one of a rich and stiff nature. Cultivation of the surface soil is not easy where mulching is indulged in to any extent, and with growing Roses surface-stirring is of great benefit. Keep the spade and spud away, but use the hoe freely. Why should we mutilate the valuable surface roots in such a wholesale manner season after season, as a spade or spud must necessarily do? We profess to encourage these, and yet many injure them annually at this season for want of a little thought.—PRACTICE.

EXAMINATIONS IN HORTICULTURE.

I FULLY endorse the remarks of a "Young Gardener" on page 134 of the Journal, that there should be two grades—one for seniors, and one for juniors. It seems to me beyond dispute that a thoroughly practical man of thirty years of age and upwards must of necessity possess a greater knowledge of horticulture than a young man from eighteen to twenty-five, whatever his capabilities may be from a literary point of view.

In the first place, what is the object and utility of the examination and the certificate awarded by the R.H.S.? In my humble opinion it should be to test a candidate's ability or proficiency as a thorough practical gardener. It is admitted by an "Instructor," on page 251 of the Journal, that no literary examination can furnish a true test of any person's professional capacity; and it appears to me, from what I can glean from the correspondence on the subject, that it is a literary examination pure and simple.

Your correspondent "W. D., Turnford," says young gardeners might take courage from the fact that the medallist last year was an amateur, and the student, only four marks behind him, a schoolmaster. With all due respect to the gentleman in question I am inclined to think if I required a man to undertake the arduous duties of head gardener I should want one with more practical knowledge than a schoolmaster. I have no doubt such men are well versed in the theory of gardening by what is gained from a multiplicity of books. But a great deal more than this is requisite to make a man master of his vocation.

To my mind a certificate obtained under present conditions is misleading as a true test of a man's actual practical abilities as a gardener. Let a man by perseverance and study obtain a first-class certificate for superior cultivation of fruits, flowers, and vegetables at some of the leading horticultural exhibitions held at various places throughout the country, with a first-class testimonial from his employer for proficiency in the various branches of his calling, and I venture to say that will have more weight with the majority of employers than any first-class certificate granted by the R.H.S. for what I consider a literary examination based on theory.—H. O. H.



EVENTS OF THE WEEK.—During the coming week events in the gardening circles are limited to two in the neighbourhood of London. On Friday night the Royal Gardeners' Orphan Fund will hold, at the Hotel Metropole, its seventh annual dinner, when Mr. Harry J. Veitch will preside, while on Tuesday next the Committees of the Royal Horticultural Society will meet at the Drill Hall, James Street, Westminster.

— **THE WEATHER IN LONDON.**—The weather has during the past week been very much colder, with occasional heavy showers and bright gleams of warm sunshine. The wind has been, as a rule, somewhat high, and on most days unpleasantly cold, despite which the growth of trees and shrubs is very rapidly advancing.

— **THE WEATHER IN THE NORTH.**—For a week the weather has been continuously dull, with rain on some part of nearly every day. There were a few watery gleams of sunshine on the 1st inst., and Tuesday morning was dull and cold, with wind from the N.—B. D., *S. Perthshire*.

— **THE next meeting of the ROYAL HORTICULTURAL SOCIETY** will be held on Tuesday, April 9th, in the Drill Hall, James Street, Victoria Street, Westminster, at three o'clock. A paper on Campanulas, by Mr. J. Wood of Kirkstall, will be read.

— **BARR'S DAFFODIL PRIZES.**—We are requested to remind our readers that Barr's Daffodil cup, specially designed by Mr. H. G. Moon, is open for competition at the Royal Horticultural Society's meetings in April and May. The cup is to be judged by points, and each competitor to choose his own time and varieties, but must not exhibit for the cup more than at one meeting, notice in writing to be sent to the Secretary of the R.H.S. in advance of the day of exhibition (which is a Tuesday), stating space needed for the cut Daffodils to compete for "Barr's Silver cup." On the morning of the show the collection should be officially entered, and a card received indicating competition for Barr's Daffodil silver cup. Several silver and bronze medals are also offered at the same meetings for Daffodils, as well as a silver-gilt medal for the best seedling not in commerce, raised in the United Kingdom.

— **LONDON PANSY AND VIOLET SOCIETY.**—We have received the schedule of prizes which are to be competed for at the Crystal Palace on July 6th. We note that twenty-six classes are provided, also that one gold, six silver, and a bronze medal are offered, in addition to money prizes and certificates. The Committee desires to draw the special attention of amateur and professional growers of the Pansy and Viola to the exceptional opportunity which this year's exhibition will afford of spreading the taste for their favourite flower through a much wider circle of the public than has been possible at other shows held by this Society hitherto, inasmuch as that of this year is to be held in the same place and at the same time as the Great Metropolitan show of the National Rose Society, at which it is well known there is always an enormous crowd of spectators and ardent florists from all parts of the kingdom. Therefore the Committee urgently appeals to all who can to make as good a display as possible this year, and we hope there will be a satisfactory response.

— **IVY.**—I am rather sceptical as to the assertion made on page 273, that the clingers or tentacles put forth by climbing Ivy are really roots. To me they have never presented other aspects than being grippers or holders, having remarkable power to attach themselves to objects, whether trees or buildings, and in that way enable the plant to climb all over these objects. We see precisely the same sort of thing on many ordinary climbers, especially on *Ampelopsis Veitchi*; but beyond being clingers, and perhaps to some extent absorbers of moisture, though that is not proved, I never found they played the part of roots. There never was a case in my experience where, the main stems of Ivy being severed, these tentacles served to keep the climbers alive. The killing action on growing trees is less due to the tentacles than to the absolute strangulation of the stems by the fierce embrace of the strong growth of the Ivy. Then, also, where Ivy forms a dense leaf covering little or no external moisture can penetrate, hence the ordinary condition of dryness.—A.

— **BIRMINGHAM BOTANICAL AND HORTICULTURAL SOCIETY.**—We are requested to inform our readers that the Daffodil show, to be held in the Botanical Gardens, Edgbaston, has, owing to the lateness of the season, been postponed from April 9th and 10th to April 24th and 25th. Schedules and full particulars can be had from Mr. W. B. Latham, Botanical Gardens, Edgbaston, Birmingham.

— **"THE NATURAL HISTORY OF PLANTS."**—This publication of Messrs. Blackie & Son is fast approaching completion, only five of the sixteen numbers having yet to come. The eleventh number, which has just reached us, continues to deal with the question of fertilisation in a most exhaustive manner. Prefixed to the volume is a coloured illustration of some of the Alpine flora, and forms a most attractive picture.

— **CATERPILLARS INFESTING LIME TREES.**—Probably the caterpillar inquired about by "A. T." (page 263) as infesting the Lime is that of *Biston hirtaria*, the "brindled beauty," which I have noticed almost defoliate that tree in June some seasons. The moth emerges in April to oviposit upon the trunks, or else it is the geometer (*Hyberniedefoliaria*), sometimes an abundant feeder on Lime; its eggs are laid about November.—J. R. S. C.

— **THE EFFECTS OF THE FROST.**—The effects of the late severe frost are now painfully evident. Portugal and common Laurels will lose a great part of their leaves and young growths. Berberries, Junipers, Rhododendrons, Yews, and Cedrus deodara, have all suffered very much where they have been exposed to the wind. Roses on walls are quite safe, and the same may be said of H.P. in the open, but Teas in the open beds have suffered more or less.—R. I., *Sussex*.

— **THE ALDBOROUGH ANEMONE.**—At one of the Drill Hall meetings in the spring of last year I remember seeing a mass of this Anemone exhibited. Mr. Allan then spoke of its wonderful manner of production; what a number of brilliant blossoms are produced from a small space, and for such a long period. Examining the blooms closely I thought them superior to *Anemone fulgens*. Undoubtedly the growth is more robust. This Anemone is in time destined to take a foremost place in early out-of-door plants.—E. M.

— **WINTER BEDDING.**—"E. M.'s" note on this subject (page 274) comes at a time when I am sure 99 per cent. of gardeners will agree to the views expressed as to the great value of small shrubs for filling beds in the autumn. Where this plan is followed all concerned may rest absolutely assured that a good effect will be produced, no matter what the weather may be. Of course they cannot vie in brightness with many of the best spring flowering plants during favourable seasons, but the great point is they can always be depended on to steer clear of becoming eyesores. A few beds planted with these shrubs at various points in a formal flower garden also helps to break up an otherwise flat surface. In short, they have so much to recommend them that I think we should all act on "E. M.'s" timely hint.—H. D.

— **BATTLE OF FLOWERS AT NICE.**—Her Majesty viewed the recent battle of flowers from a space on the Rue du Congrès, placed at her disposal by the municipality. The Queen was received by Comte de Malaussena, the Mayor of Nice, and presented on behalf of the Félis Committee with a pink satin banner and a splendid basket of Violets. Her Majesty remained in her carriage during the proceedings, and the Royal equipage was soon filled with small bouquets thrown from the passing vehicles. The Queen appeared to much enjoy the display, and from time to time returned the bunches of flowers, especially favouring the French officers of the garrison. Both on arriving and when leaving Nice Her Majesty was saluted with the British National Anthem. Miss Van Buren of New York, won the first prize for the best decorated carriage, her Victoria resembling a cornucopia overflowing with flowers:

— **THE EFFECT OF GREEN GLASS ON PLANTS.**—According to the "Kew Bulletin" recent investigations have shown that the green glass used at Kew intercepts about one-half of the effective influence of ordinary sunlight on the processes of plant life. Of late years the increasing haziness of the sky, due to the smoke produced by the rapid extension of London to the south-west, has produced the same effect at Kew as the use of green glass; and it has become obvious that in the future the plant houses must be so constructed as to exclude as little of the available sunlight as possible. Since 1886 the use of green glass has, therefore, been discontinued in all the houses except the Fern houses and the Palm house; and, it having been proved by experiment that even Filmy Ferns thrive better under white than under green light, if direct exposure to the sun is excluded, the use of green glass will now be altogether abandoned at Kew.

— THE BATLEY CHRYSANTHEMUM SHOW is announced to be held on November 17th.

— GARDENING APPOINTMENT.—Mr. T. A. Glover, for the last eight and half years gardener to Ed. Ellis, Esq., Manor House, Wallington, Surrey, has been appointed head gardener to F. Macmillan, Esq., Temple Dinsley, near Hitchin.

— CALANTHE CULTURE.—Permit me to inform "S. K., *Lyminster*" (*re* Calanthe Culture, page 273, in last week's issue of the Journal) that I was *not* referring to his article ancient placing three good bulbs in a 5-inch pot; in fact, I was merely illustrating the system of a writer in one of our contemporaries.—JAMES FRIEND.

— PRESENTATION TO MR. WILSON.—Mr. Wilson, steward and gardener to the Earl of Lindsay, Uffington House, a post he has filled for twenty-six years, was recently presented by his Lordship with a handsome watch and chain, a tripod lamp, also a scarf pin from the Ladies Bertie, on his leaving Uffington for Bank Hall, Tarleton. A silver inkstand formed a gift from the villagers

— MARCH IN MID-SUSSEX.—The first three weeks of March were in this district (Haywards Heath) on the whole favourable for garden work. The frost came slowly out of the ground, and fortunately but little rain fell, so that by the 14th the land was dry and working well. Since the 20th it has been showery, cold and sunless. To-day (April 1st) we had a sharp thunderstorm, which brought a heavy down-pour of hail.

— SUSSEX RAINFALL.—The total rainfall at Abbot's Leigh, Haywards Heath, Sussex, for the past month was 1.76 inch, being 0.32 inch below the average. The heaviest fall was 0.40 inch on the 26th. Rain fell on sixteen days. Total for the quarter, 4.40 inches, which is 2.26 inches below the average. The maximum temperature in the shade was 60° on the 22nd, and the minimum 22° on the 4th. Mean maximum, 48.16°, mean minimum, 34.16°; mean temperature, 41.16°, which is 0.40° below the average.—R. I.

— MARCH WEATHER IN SOUTH WALES.—The following is a summary of the weather here for the past month:—Total amount of sunshine eighty-five hours fifty-five minutes. Maximum, nine hours and a half on the 13th; minimum ten minutes on the 20th. Rain fell on eighteen days, total depth 5.26 inches; maximum 1.63 inch on the 23rd; minimum 0.01 on the 20th. The wind was in the N. and N.W. on twenty-five days. It was a very cold stormy month throughout. Snow fell on five days. There was a very strong gale on the 23rd and 24th, and it has been stormy every day since then.—W. MABBOTT, *Gwernllwyn House, Dowlais, Glamorgan.*

— OVERDOING GARDENING.—"I went to stay at a very grand and beautiful place in the country where the grounds are said to be laid out with consummate taste. For the first three or four days I was enchanted. It seemed so much better than Nature, that I began to wish the earth had been laid out according to the latest principles of improvement. In three days' time I was tired to death; a Thistle, a heap of dead bushes, anything that wore the appearance of accident and want of intention was quite a relief. I used to escape from the made grounds and walk on the adjacent goose common, where the cart ruts, gravel pits, bumps, coarse, ungentleman-like grass and all the varieties produced by neglect were a thousand times more gratifying."—(SYDNEY SMITH)

— MOVEABLE FEASTS.—I do not think "E. K." (page 269) can have had much to do with the management of horticultural societies, of which exhibitions are the primary import, or I do not suppose he would advocate the moving of the day. Managers of societies have too often found to their cost that to alter the date when once fixed is a mistake, and has more than once drifted them into debt and despondency. I have known a date changed, the original turned out a splendid day as regards the weather, and the new one *vice versa*. From an exhibitor's point of view I do not think it is good policy. The cultivator who overcomes difficulties that occur through adverse weather, and is ready on the appointed day, surely deserves much more consideration than he who does not meet the exigencies of the season in the same practical manner. I have attended many Committee meetings where an alteration has been proposed, but it has met with little favour. I never yet saw an exhibition that was an utter failure for the reasons stated by "E. K.," but I have seen Rose shows that were "thin," but simply because too many were held in that particular neighbourhood.—EXHIBITOR.

— HORTICULTURAL CLUB.—We are requested to state that the next conversazione will take place on Tuesday, 9th. The discussion will be initiated by Dr. M. C. Cooke on the Fungoid Diseases of Cultivated Plants, a subject of great interest and importance.

— MODERN GRAPE GROWING—HEATING.—I should feel very much obliged to Mr. Taylor if he would kindly state the name (if any) of the boiler to which he alludes in his article on page 252 of the issue of March 21st, which has given him so much satisfaction; also would he kindly give the name of the firm who supplies them?—W. NEILD.

— THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—The last meeting of the season was held on March 26th, when a paper was read by Mr. G. Jarvis, gardener to Mrs. Whittaker, Cliff House, on "The Working of Our Society." Mr. Jarvis gave some good advice on this subject, and pointed out the advantages to gardeners of joining societies such as this. One of the great things, he said, derived from these societies by young men was the art of public speaking. A few alterations in the rules were suggested, and that the present rules should be submitted to the Committee to revise, and have ready, for adoption or rejection, by the members at the next general meeting, to be held early in August.—F. L. T.

— EARLY LAXTON POTATO.—This, which seems to have been the most meritorious Potato that the late Mr. Laxton raised, has already, I find, made a great reputation with some extensive market growers at Mitcham, who found it to be last year not only a wonderful cropper, but remarkably early. They have it, I think, under the name of Harrison's Short Top, that well-known Leicester firm having purchased the stock of Mr. Laxton and put it into commerce. The title which heads this note was that by which it was known at Chiswick, where two years in succession it proved to be a perfect wonder amongst first early sorts. It should make a first-rate pot or frame variety, because its top is very short and its crop relatively remarkable.—A. D.

— MUSHROOM SPAWN.—I saw last Christmas in a first-class garden an illustration of the fact that it is not always the cheaper spawn that is worst. A couple of large beds, spawned several weeks, had given a great number of tiny and utterly worthless growths, much to the annoyance and disappointment of the gardener, who preferred to endure in silence rather than make a row about it with the seedsman. Yet this spawn was high-priced, and came from a leading house. It need hardly be said that so soon as this state of things was seen other spawn was obtained from a different source, and fresh beds made up. Still the loss at that time of the year was great. Cannot some means be devised whereby the spawning fertility of the cakes can be tested at once, and before beds are made up? Surely that should be practicable, and thus save such annoyances as that I have mentioned.—D.

— THE BOTANISTS' ILLUSTRATED POCKET-BOOK OF THE FLORA OF SWITZERLAND, THE PYRENEES, AND THE MOUNTAINS OF SOUTHERN FRANCE.—To all lovers of field botanising the need of an illustrated handbook of the flora of the particular region in which they are interested must always have been apparent. Before the rise of cheap illustration, however, there could not be the slightest prospect of this very natural desire being gratified. Such a work must have been too costly and too cumbersome ever to have possessed any practical utility. Even now in England the cost of production is such that a cheap and convenient manual for the purposes of home botanising does not exist in colour. Absence of a sufficient demand is undoubtedly the reason of this, though it is not impossible that the demand may yet be stimulated by some enterprising publisher. In France they manage things otherwise, either owing to special facilities or exceptional enterprise. We have received from Mons. H. Correvon, of the Garden of Acclimatisation at Geneva, a copy of his pocket-book of the flora of the mountainous region of Switzerland and Southern France, published by M. Paul Klincksieck, of Paris. It is quite a handy volume, and possesses the unique distinction for a work of its size, of having 144 plates representing in colour 180 species of plants. These are the most characteristic of the 480 species described in the text, and so excellently are they portrayed that a novice, far from experiencing bewilderment in identifying a plant, must recognise it on sight with a feeling of absolute pleasure. Indeed, so attractive are the pages, that the book if encountered casually by a tourist, might easily arouse a feeling of interest in the flora of the neighbourhood and end by winning another adherent to the cause of botany. We give Mons. H. Correvon our hearty congratulations on the appearance of this useful little work, and trust we may see the day when its antitype will appear in this country.

— **CLERODENDRON FLOWERS FALLING.**—In reply to "Amateur," page 273, it is impossible to state the exact reason why the flowers should fall from his *Clerodendrons* without knowing how the plants are treated. The only reason I can assign for it is that they must have received a check either at the roots or in the top growths. If the plants have been growing in a stove temperature till the flowering period, and then placed direct into a greenhouse or conservatory temperature, they will receive a severe check, and the flowers will fall. To avoid this the plants should be placed in the intermediate house for a week or fortnight, after which they may be removed to the greenhouse with impunity, but at no time should they be given cooler treatment than 55°. Another cause of flower dropping may be traced to the application of stimulants to the roots.—**GEO. PARRANT, Ashby Lodge Gardens, Rugby.**

— **FISHER, SON, & SIBRAY, LIMITED.**—This Company was registered on the 21st ult., with a capital of £50,000, to take over the old-established business of nurserymen, seedsmen, and florists, carried on by the partners in Messrs. Fisher, Son, & Sibray, at Handsworth Nurseries, near Sheffield; Fitzalan Square, Sheffield; Church Street, Rotherham; and elsewhere. An agreement for the sale of the business by Messrs. Charles Fisher, Ernest Edward Sibray, Walter Earl, and others, the late partners in the firm, to Mr. Thomas George Shuttleworth, of Messrs. T. G. Shuttleworth & Son, Church Street, Sheffield, Accountants, on behalf of the Company, is adopted by the Articles of Association. The qualification for Directors is that of holding at least £1500 in the Company, and the first Directors are Messrs. Charles Fisher, Ernest Edward Sibray, Joseph Walker, Walter Earl, and William Atkinson. By the Articles of Association Messrs. Alderson, Son, & Dust, of 40, Bank Street, Sheffield, and Eckington, and Messrs. Sanderson & Co., London, are appointed solicitors to the Company; Messrs. T. G. Shuttleworth & Son are appointed Auditors; and Mr. William Atkinson the Managing Director.

— **A RECOLLECTION OF THE LATE MR. JOSEPH LAKIN.**—In April, 1873, I was changing my residence from the north to the south of England, and I stayed at Chipping Norton a fortnight on a visit to my wife's relatives; and as I was passing the Police Station I noticed that the class of flowers growing in the garden and climbing Roses must all have been selected with care, and tended by a skilful florist. I asked my friends who was the gardener at the Police Station, and they said that is the superintendent. I said, "Please introduce me to him." Knowing florists' flowers pretty well he made me as welcome as an old friend, and I spent a very pleasant hour looking over Mr. Lakin's choice floral treasures. The season was an early one, and choice Roses as *Maréchal Niel* were blooming freely on the walls of his residence. As we were walking round his house we came into a court-yard where it seems he had a couple of cells for temporary detention of prisoners. Two rough men were blacking the super's boots; they touched their caps. Mr. Lakin said, "What, you here again?" "Yes, Sir. We are too fond of 'em. We can't keep away from you." I inquired who they were, and learnt they are a brace of poachers often there, whom the police had caught during the night.—**R. M., Newbury.**

— **DOUBLE WHITE VIOLETS.**—I have just received from a friend some beautiful double Violets, amongst which are flowers of *Lady Hume Campbell*, which are very fine, pure white, and double. But it seems so difficult to disconnect this form from several others, so that one seems driven to ask how many really distinctive double white Violets there are in commerce. The Old White, sometimes called *Odoratissima*, *Fragrantissima*, and *Queen of Whites*, is very well known. Then we have the one just referred to, *Lady H. Campbell*, *Comte Brassa's White*, *Swanley White*, these two apparently identical, and *Belle de Chantenay*. Are there any more under name, and if so, how much do they differ? Is there any one of the whole that stands out beyond others in the same way that a good stock of *Marie Louise* does amongst coloured varieties? There seems to be an intimate connection in Violets between perfume and colour, as whilst the whites have the weakest scent, the darkest coloured ones are the richest. Then apart from these considerations, popular tastes run most after depth of colour in Violets, whether single or double. I do not know where the great numbers of bunched deep blue singles we see in the streets come from just now, as I fear in the metropolitan district the plants have been nearly killed by the frost. Twenty years ago the Violet trade about London was a remarkable one, but we have rarely had good seasons for the flowers since, and whilst the foreign competition has been extraordinary, the adverse seasons certainly have not been due to competition. But bunched Violets may be gathered fresh and run into

London from remote places in a few hours, hence it may be that our present abundant supply of sweet perfumed rich singles of the true Russian are home grown. I trust they may be so.—**A. D.**

— **WHEN TO PLANT POTATOES.**—I am not surprised to hear in all directions there is great hesitancy this year shown with respect to the planting of main crop Potatoes. All sorts of growers shake their heads knowingly, and declare they are not going to be caught as last year. They are very wise to be so cautious. We shall not be well out of the wood of the present winter until nearly the end of May, and to plant Potatoes early, even though the ground is just now in such splendid condition for the work, is to court fresh disaster. There can be no doubt but that the bulk of the later division will be planted after Easter. That may result in entirely escaping harm from the latest spring frosts. Even if there be no such frosts to avoid, growth is always stronger and more rapid from later planting. We must not forget that the Potato is still a tender exotic, and even where it escapes frosts often suffers great check because of the prevalence of low temperatures. Except where special protection to the tops can be given, very early planting leads to no gain, and may to considerable loss.—**D.**

— **WAKEFIELD PAXTON SOCIETY.**—Mr. H. S. Goodyear presided at a meeting of this Society held on March 23rd, when the essayist was Mr. G. Bott, master of Miss Pilkington's School at Walton, who has in previous years delivered a large number of exceedingly interesting lectures, and on Saturday last he added another to the long and excellent series. His subject was "Migration of Plants," and he dealt with it in a thorough and most interesting manner, and imparted much valuable information to his large and very attentive audience. The lecturer showed the various ways and means by which Nature covers the surface of the globe with vegetation, and explained some of the most ingenious contrivances by which seeds and plants of many kinds are transferred from one part of the world to another and germinate and flourish. This, he explained, was caused by the wind, by animals, birds, and insects. After showing how seeds are conveyed from land to land in the air, in the crops and beaks of birds, the stomachs of animals, the wool of sheep, Mr. Bott concluded by saying that the more they searched and inquired into these matters the more they were struck with the great power of the Creator. A very hearty vote of thanks to Mr. Bott closed the meeting.

— **EMIGRANTS' INFORMATION OFFICE, 31, BROADWAY, WESTMINSTER, S.W.**—The April circulars of the Emigrants' Information Office and the new annual editions of the handbooks show the present prospects of emigration. A new edition of the handbook to the South African Republic is now ready, and a revised and enlarged edition of the West Indian handbook will shortly be issued. Emigrants to Canada should start now; the only demand is for domestic servants, for experienced farm labourers, and for men able to take up land. In New South Wales there is no demand for more labour, except for domestic servants. In Victoria trade and work are very bad, and further reductions are being made in the salaries and number of civil servants to meet the inadequate revenue of the Colony. As many inquiries are being made about the Mildura Irrigation Colony it is necessary to point out that it is suitable for those emigrants only who have a capital of at least £400 to £500. The Irrigation Colony undoubtedly possesses great possibilities of future success for those who can afford to wait; but at present it is only partially developed, and irrigated fruit land may be bought in other parts of Victoria at less cost, and nearer to railways and markets. In South Australia an Irrigation Settlement has been authorised at Lake Bonney, near the River Murray. The land is to be cut up into blocks of 10 acres each, and to be sold at not more than £22 an acre. Provision is made for a limited number of settlers without capital by engaging them at regular wages of 32s. 6d. a week, out of which £1 a week is retained towards the purchase money for their blocks. In Queensland the demand for ordinary labour seems fully met. For a few experienced farm hands however, and especially for men able to take up free grants or other land, there are considerable openings. In Tasmania the supply of labour is quite sufficient. In New Zealand many trades have been doing well, and country labour for the most part has been fully employed. With regard to Cape Colony a large number of official reports for 1894 were received last quarter. They show with few exceptions that all kinds of labour were plentifully supplied both in the towns and the country. Natal is well supplied with labour. Intending emigrants to Matabeleland and Mashonaland must bear in mind that no one should go to those territories who is not in possession of some small means.

MODERN GRAPE GROWING.

THE BORDER.

(Continued from page 252.)

THE principal objects of a Vine border are to protect and keep the roots in position, and to afford a suitable medium for conveying food to the root hairs. The chemical constituents of the soil are of minor consequence compared with its physical condition. You may have a soil with the dozen or more elements and compounds essential to the Vine's prosperity, so beautifully balanced that nothing more could be desired in that way, and yet it may be comparatively sterile.

On the other hand, if you possess a soil which is physically right and contains nothing obnoxious, it is an easy matter to make it fertile and to keep it so. Whatever soil the Vine may succeed in abroad—and I am told it often flourishes well where there is hardly any soil at all—experience teaches us that there is nothing suits our purpose so well as a rather heavy loam, that is a soil containing not less than 30 per cent. of clay in almost invisible particles.

Do not let it be thought from this that I disparage the work of chemists, far from it. There is nothing I devour more greedily than records of experiments made by such men as Messrs. Lawes and Gilbert, and certainly any honours that can be bestowed on the world's benefactors ought to be theirs. But if anyone thinks that by paying a few shillings for an analysis of his soil at the village laboratory, even if the presiding genius should be a Davy or a Voelcker, his fruit-growing is going to be made a matter of rule and thumb, he will find himself woefully mistaken. Analysing a soil is not such an easy matter as it appears to the uninitiated. It requires a good many delicate operations if it is to be done thoroughly; and after all, though the ingredients may be there which would render the soil a fertile one so long as it was a ploughed field, a Vine border has the disadvantage of being very much shut off from the beneficial action of frosts and winds, sunshine and showers, and must to a great extent be dependent on the cultivator.

Analysing manures is by comparison an easy matter, because everyone who has learned the rudiments of agricultural chemistry knows what they should contain, and thanks to our legislators no one need now buy quack mixtures, though they do buy them and will continue to do so. Those having a good soil to deal with, and abundance of energy in themselves, may succeed in spite of the quackery, in the same way that people having a good constitution, make their supper, when they have fancied ailments, off Mrs. Swindle's tincture of soap bubbles, and still live. Of course, the tincture gets the credit of saving their valuable lives for the benefit of humanity at large, and Mrs. Swindle is immortalised.

Sometimes it is difficult to secure a soil that is physically correct, and then recourse must be had to mixing. There is no doubt a natural soil is best if you can get it in proper form, but clay can be dried and beaten into powder so that it shall appear almost like a part of the natural soil itself. On the other hand, if a soil contains too much clay and too little sand, there are many other gritty substances to choose from which will be better than sand for mixing, such as mortar from old buildings or burned clay. If a soil does not contain sufficient clay it is not holding, water passes through it too freely, and remember that every time you water a light, loose soil you wash something out of it.

Also it is not retentive of manure. If you use a chemical fertiliser you apply so much to the square yard according to the printed directions received from the vendor, a small part of which goes to the plants and a large portion to the drains. The worst of it is you have no means of knowing how much is retained by the soil, whether too much or too little. Again, what is called a light soil, if it is sandy, gives a great portion of its moisture to the air in the way of evaporation. A soil which is too heavy also has its drawbacks. It may hold the water too long, and not be sufficiently porous to admit air, consequently it will become sour, so that no roots can grow in it, or, if they manage to do so, will not ripen, and the leaves soon find this out.

It has been my lot to have the two extremes to deal with in the matter of soils. In the kitchen garden at Longleat the soil is so stiff that if worked at all when wet it is injured for years after. One portion, about twenty-eight years ago, had some of the subsoil taken out and burned on it by one of my predecessors. The ground, I have been told, was wet at the time, and the axles of the barrow wheels ran uncomfortably close to the soil. Of course the burned material was placed on the top and dug in, but the ground had not recovered when I last saw it, and probably has not done so now, although I made a practice of keeping a fire going the greater part of every winter outside the garden, burning refuse and clay, and this particular patch must have had at least 4 inches of such material put on it during my superintendence. Such ground when well managed grows enormous crops of splendid quality in a season that is not too wet, but it requires a great deal of humouring.

Now, in this neighbourhood it is altogether different. I see men working the ground immediately after and indeed during heavy rain, and this does not seem to hurt it at all. I have seen the best of farmyard manure placed 8 or 9 inches deep over it, and buried with great difficulty by a man with a spade. Very good Mangold was grown on it, but it would want manuring again the following season. Where grass is grown there is very little of what can be called soil before we come to a yellowish sandy material, loose at first, but a little deeper it takes out and looks like clay. It crumbles when exposed to the air, and its capacity for absorbing and disposing of vegetable manure is something marvellous.

Going deeper we find some clay mixed with the sand, and at 8 or 10 feet come on a very soft bluish clay, and this when dried and pulverised, by the action of frost preferably, or pounded, is what we use principally to mix with our Vine soil.

If a soil that is neither too heavy nor too light can be obtained with the turf on it, all well and good. If not we can do without the turf, and when necessary alter the material to make it of the right density. It is an advantage to have at least a little turfy soil to start the Vines in, but there is no particular need for a large amount of fibry turf; indeed it is apt to make the border too rich in nitrogen, causing at the first rampant growth and large pith. The pith, I believe, is what you make it at first, it never enlarges. The part it plays in the plant's economy is, so far as I am aware, not well understood, but no one likes to see too much pith.

When one is starting Vine-growing in a new place where the soil and surroundings are strange, it is advisable to begin cautiously, for even after a life's experience one is easily out of his reckoning. I would recommend starting with perfect drainage and narrow borders, say 4 or 5 feet in width, and then feel one's way during the next year or two.—WM. TAYLOR.

(To be continued.)

THE LATE MR THOMAS BAINES.

MISS BAINES favours us with an excellent portrait of her late widely known and much-respected father. It will be recognised by many of our readers as a life-like delineation of the famous plant grower, gardener, and judge, while those who may not have had the privilege of knowing Mr. Baines will be pleased to see what manner of man he was as he went about so actively from show to show in his latter years, and from garden to garden in the course of his landscape work. The portrait is taken from an oil painting by Mr. C. F. Lowcock, who has been very successful in producing a characteristic likeness of Mr. Baines, who was a man of mark in the gardening world in which he worked so long and so well.

THE LONG FROST AND INSECTS.

SOME of my friends, while emphatic in their complaints as to the damage caused by the long frost to many plants and shrubs, are rather jubilant over the supposed effects it has had upon insect life. It must have killed many, they say, above ground and beneath. I have felt myself obliged to discourage them a little by telling them we do not know just yet; we are unable to judge of its results till the world of insects are once more aroused by the influences of spring. The observations of entomologists on the insect tribes generally tend to the conclusion that the hibernating species can stand severe cold better than mild and moist weather. Certain it is that no amount of cold would injure insects' eggs, nor affect to any great extent such moths and beetles as live in their perfect stage from the winter to spring. About those in the pupal or chrysalis stage there may be more doubt. The species that are usually exposed to all the weather of winter are so seasoned to it, I should say, that a prolongation of frost, or some degrees of extra intensity, would not be likely to touch them. We shall soon be able to ascertain whether the two common white butterflies (*Pieris Brassicae* and *Rapae*) which emerge in April to deposit eggs about gardens have had their numbers diminished by death of pupae.

Amongst the *Noctua* group of fat-bodied moths we have several destructive species which pass the winter as pupae under the soil, but not buried at any great depth. A familiar example is the too abundant Cabbage moth—*Mamestra Brassicae*. Possibly some of these have been killed by sudden change of temperature in this way. On two or three days in February the sun shone brightly, melting a layer of snow, the warm fluid then partly entering the earth; but after sunset the temperature fell rapidly, and a sheet of ice formed that would freeze up pupae near the surface which had been previously thawed by the sun. But there is this to be considered also—that many birds during the winter seek out and eat pupae, which by the long frost obtained protection from their enemies, the ground resisting the birds' bills and feet. Mild winters are helpful to the birds hunting, not only pupae but other subterranean insects, and when the mildness is accompanied, as it often is, by heavy rainfalls, that destroys hibernating species by inducing a sort of disease, attended by fungoid growth on the skin.

Gardeners, I know, generally suppose that a cold winter lessens their insect enemies next season. This does not seem to be the case, taking the majority of species, but rather the reverse. Still, the early months of 1895 were exceptional, owing to the severity of the frost, and its prolongation towards the spring, though it is the fact that caterpillars may be so congealed as to chink like stones if shaken in a box, and afterwards recover. Some, of course, could not endure such intense cold. Then, again, we must remember that instinct guides many caterpillars to descend deeper into the earth when frost is approaching, wherein they have much the advantage of our water pipes. Whether any of the caterpillars that pass the winter in a silken abode—the brown-tail, for instance—would strengthen its walls during sharp frost, if awake enough to do so, we cannot tell. Amongst the feeders upon wood, our persistent enemy, the goat caterpillar, destroyer of many ornamental and also some fruit trees, prepares for itself a warm retreat, well lined

with silk and chips, for its security in the winter. Probably a similar plan is followed by the leopard caterpillar, a resident in various trees.

The much smaller caterpillars of several clearwing moths, which pass their life in stems, branches, or twigs, take up a winter position where they will be least exposed to the cold; but they appear to feed all that season—at least, such is the habit of the species infesting the Currant, Pear, and Apple. I expect the winter has seen the death of many of those insects which secrete themselves under loose bark, birds having been very diligent in their researches on tree trunks, after the supply of

spring it feeds upon various plants, such as Lettuces and Strawberries; before hybernation it is often found infesting Hollyhocks, amongst other garden species. The habit of this caterpillar is to hide near the ground during the cold season, and a per-centage, I expect, will have been killed by the snow or frost, though their coats are some protection.

Unshielded, however, is the caterpillar of the Currant moth (*Abraxas grossulariata*), some individuals of which conceal themselves amongst stones or refuse in the winter, while others brave it by simply fixing themselves firmly upon a twig of their favourite bush. Hardy fellows they,

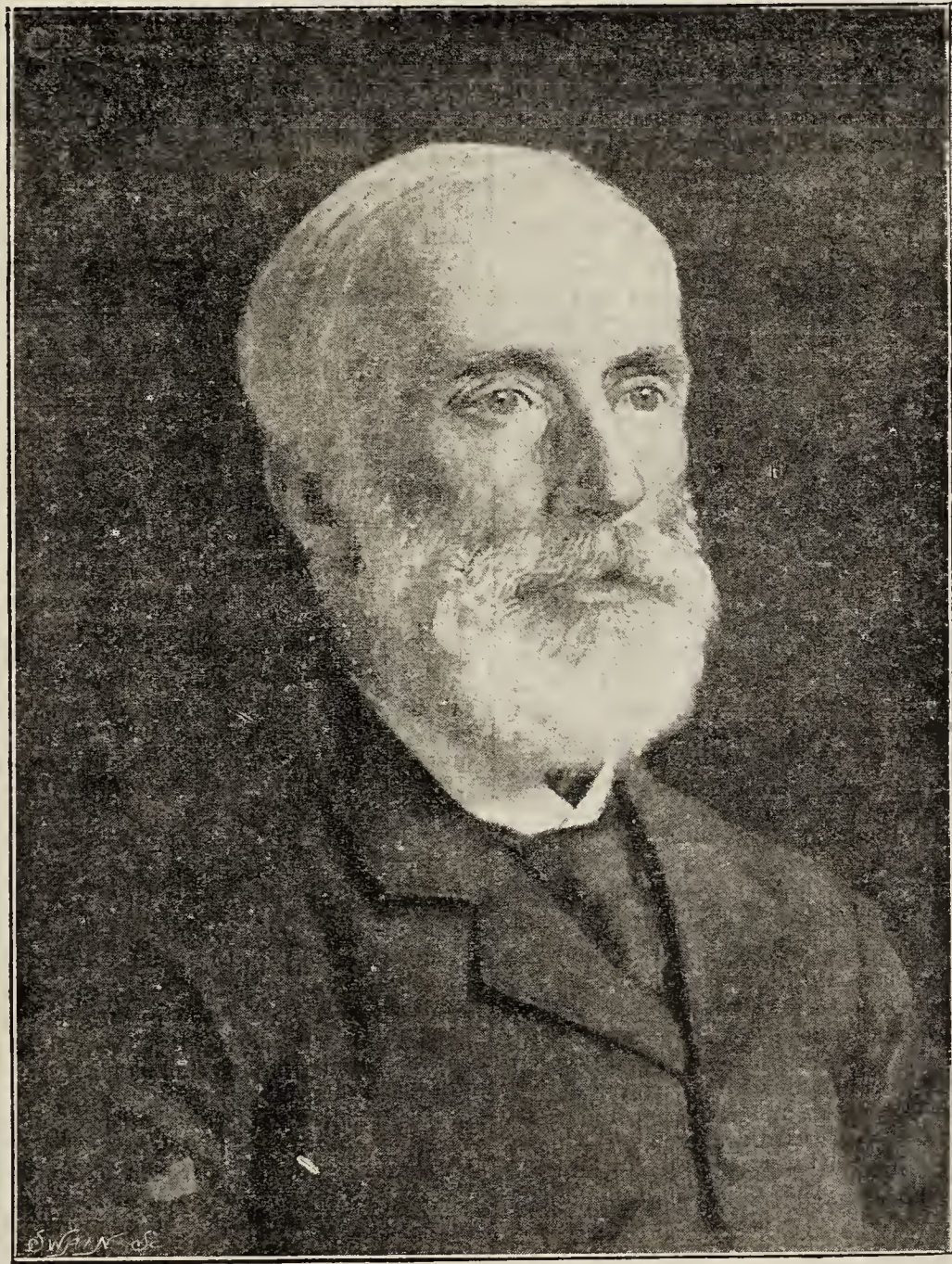


FIG. 51.—MR. THOMAS BAINES.

berries began to fall short. It would be pleasant to think the frost was likely to make a reduction in the number of the aphid hosts of the spring, but I expect it will not; the eggs would not be affected, nor probably the insects, "queen aphides," or other adults which hibernate under the earth or in various nooks, their bodies seem to be well stored with oil.

We will just notice a few species of garden and orchard insects, where the hibernating caterpillars or larvæ of last winter may not have escaped entirely from its effects. A familiar insect at once occurs to us in the caterpillar of the tiger moth (*Arctia caja*), often called the "woolly bear," though not clothed in wool, but black-and-grey silk. During the

as I know from observation, but February, 1895, may have been a bit too sharp for them, though not markedly injurious to our Currants and Gooseberries. Then there is the caterpillar of the angle shades (*Phlogophora meticulosa*), one of the very few caterpillars that feed through the winter, quite exposed to the weather, upon any garden plants that may be accessible, such as young Chrysanthemums, Primroses, and early Peas, a velvety leech-like fellow, brown or greenish, with white lines and dots; some of these I saw about in December, but since then they have disappeared.

Another of the hibernators common in gardens is that to which

some old entomologist gave the odd name of the Gothic (*Nænic typica*), which begins life on the Pear and Plum, or other fruit trees, descending in October to hide amongst Box edging, under dead leaves and stones till April. A ravenous caterpillar is it during the spring, devouring herbaceous plants generally; but we may hope for diminished numbers this April. There is a well-known caterpillar—at least, better known by its doings than by its aspect, for it usually hides under the soil—that of the large yellow underwing (*Tryphæna pronuba*), which feeds on the crowns and stems of many plants from the autumn to May, that may have suffered from the cold or want of food. To name one more species, the social and annoying enemy of some fruit trees, the little ermine moth caterpillar emerges from the eggs in the autumn to winter in small colonies upon the twigs under patches of protective gum which is spread by the mother insect. It has been noticed that the substance is, by some hard winters, made to split or shrivel, when the young caterpillars are exposed to cold, also to the attacks of insect-eating birds.—ENTOMOLOGIST.

THE LATE MR. WILLIAM DEAN.

MR. RICHARD DEAN obliges us with the following supplementary notes on the career of his late brother and great and much-respected florist. A varied career it is truly, and shows the wide experience of our friend in the work he loved:—

"My inability on the spur of the moment to refer to documents, added to my late brother's singular reticence in regard to some of his undertakings, led me to make one or two mis-statements in regard to his doings, and also to withhold one or two points which, with your permission, I hasten to correct and supply. I find I am wrong in stating that he was once with his old friend Mr. Thomas Hewitt of Solihull. When the London branch of the seed business was closed my brother went to the Heatherside Nurseries at Farnham as traveller and sub-manager. These nurseries, which were on a somewhat extensive scale, were founded by the late Mr. A. Mongredien, the author of 'Trees and Shrubs for English Plantations,' and other works of a social and political character. The above mentioned work is an invaluable reference book. The 'Heatherside Manual of Hardy Trees and Shrubs,' with a preface giving instructions How, When, and What to Plant, issued in 1874-75, was also prepared by Mr. Mongredien. It is a work of 116 pages, and valuable for the many useful suggestions. The death of Mr. Mongredien occasioned great changes, and my brother then established the Heath End Nursery at Farnham, but parted with it after a few years, and then went to the Chad Valley Nurseries, Edgbaston, and from thence to Walsall, where he was in business eight years, and taking up the raising of Violas sent out several new types, among them Queen of Spring, Mrs. Turner, and True Blue, and to him is due the first attempts to obtain a rayless section. From there he went to Solihull as manager of a small nursery belonging to Mr. Power at Edge Lane, and not to Messrs. A. Blizzard & Co., and on leaving there he established himself at Sparkhill, where he died.

"For many nights before his death he had slept in an arm-chair being unable to lie in bed. The doctor visited him on the morning of the 23rd, the day of his death, and did not appear to think any change was in progress. He partook of his tea at half-past five, conversing on domestic affairs; immediately after he was seized, and falling into a comatose state, actually died in his sleep at half-past six, breathing gently and regularly to the last, and seemingly not in any pain."

"He left a widow and six children, all of whom followed him to his grave in Yardley Cemetery on the afternoon of Saturday last, his brother Richard and his son-in-law being also present, and several friends from Birmingham, including Mr. Robert Sydenham, Mr. C. H. Herbert, Mr. W. H. Gabb, and members of the Birmingham Gardeners' Mutual Improvement Society, who carried him to his grave, and a magnificent wreath was sent by the Committee and members, and other floral tributes came from Mr. and Mrs. Beddard, Stoneleigh Abbey, Kenilworth; Mr. and Mrs. Watkins and Mr. and Mrs. Herbert, of Messrs. Thomson & Co., the Welshpool Horticultural Society, the Birmingham Chrysanthemum, Fruit, and Horticultural Society, from the Sutton Coldfield Chrysanthemum Society, a spray from the children of Mr. and Mrs. Herbert, and others."

It was with sincere regret that, on opening the *Journal of Horticulture* last Friday, I learned the sad tidings of the death of that great florist and lover of Nature in all her gentlest and fairest aspect, Mr. Wm. Dean. I had not the gratification of knowing him personally; but friendship, as I know from experience, very frequently exists without the assistance of personal acquaintance; a deep chord of sympathy, the inevitable result of mutual tendency in a common direction, existed between us, which even the awful and mysterious intervention of the impartial "Last Messenger" cannot wholly remove.

For his memory and his influence, which are utterly imperishable, remain like benedictions to bless us still. Of my own delineations of his favourite flower contributed to this Journal he was generously appreciative, and on one occasion he was so kind as to express his regret that he was unable to invite me to the Viola Conference, as he did not at that period know my address. It would have been a great pleasure to me to have been there, if only to have made the acquaintance of this venerable horticulturist, so child-like in his simplicity, so generous in his sympathies, so beautiful in his peaceful, unobtrusive nature, so venerative of all beauty and all goodness in his life. He has fast followed in the footsteps of another friend of mine, whom also, alas! I

had never seen, but whose great kindness in my memory shall always abide—William Thomson of Clovenfords, "King of the Vineyards," whose creations are sufficient to perpetuate his name.

It was my intention to have visited Birmingham on some future occasion on my way to London, that thus I might have the privilege of seeing Mr. Dean's Violas and Mr. Chamberlain's Orchids. Also, before the death of Mr. William Thomson, I had promised to pay a visit to Clovenfords in October, and may do so still, for its present possessor is amply qualified by nature to prove a worthy successor to his gifted father and sustain his reputation as a Vine cultivator.

But who as a writer on the Pansy and Viola is competent to succeed the late Mr. Dean? I fear the leading horticultural journals will suffer in this exquisite department by his death. I hope that Mr. Wm. Cuthbertson of Rothesay, Mr. McLeod of Chingford, and other great cultivators of the Viola, will do their utmost to sustain by their writings the wonderful, yet amply merited, popularity wherewith the lamented florist of the Midlands invested by his genius this fragrant flower, also that the invaluable varieties which owe their origin to Mr. Dean may not be permitted, like many of their predecessors once equally esteemed, to fall into oblivion. I have no fear of this.—DAVID R. WILLIAMSON.

By the death of our old friend I feel to have lost a correspondent who spared no trouble or pains, and entered so thoroughly into all our views and suggestions. I had a letter from him the morning he died. I wanted him to come for our spring show and act as Judge, and it was only on Saturday, the 23rd ult., I had a letter from him saying he could not possibly come, although he would have been so glad if he could have ventured. I do not know when I met so real a gentleman as Mr. William Dean, it was always a great pleasure to meet him at any time.—H. W. ADNITT, *Shrewsbury*.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

AS questions are sometimes asked through the gardening Press for particulars of the G.R.B. Institution, would it not be a good idea to republish Mr. Thomas' letter (a copy of which I enclose)? This explains its principles, and would no doubt do good. I wish gardeners as a body would become members, for my part I cannot understand why they do not.—GEO. SUMMERS.

AN APPEAL TO GARDENERS.

HAVING recently been elected a member of the Committee of the above Institution, I hope I may be excused for approaching my fellow gardeners for the purpose of endeavouring to influence their minds in favour of a more general and generous support of its funds. It cannot be said that I am asking others to do what I have not attempted to do myself, as I have contributed in one way or another between £70 and £80 to this good and well managed Institution.

It is difficult to understand why all gardeners do not rally round this splendid property of £29,000, especially when it is said that every shilling of it is their own. One would think that even from motives of selfishness, if from no higher, every gardener would strive to do all in his power to promote its usefulness and prosperity.

There cannot be less than 30,000 gardeners, nurserymen, and others engaged in horticultural pursuits who are, or ought to be, interested in its welfare, and if as many of these as can afford it subscribed their guinea a year, and if the remainder who are unable to do this were to collect small sums amongst themselves annually for the benefit of its funds, the question of old age pensions, as far as it relates to gardeners, would be solved.

Objections have been advanced by many persons against the Institution because it is not founded on the lines and principles of a benefit society, where a member can claim help at any time in case of need. On the surface this may appear to be a reasonable objection, and I am afraid has been the cause of many not subscribing to its funds; but I think on a little consideration that this objection may be proved to be an erroneous one, and especially as in the case of gardeners whose wages are scarcely now stopped in time of sickness, and who, therefore, do not feel the pinch of poverty at this time like mechanics and others who are paid by the hour, and whose pay is stopped when work ceases. As bearing on this point, I may say I have been a member of a benefit society for upwards of twenty years, paying about 22s. a year, and if I am to remain a benefit member I shall have to go on paying that sum as long as I live, and in case of sickness and permanent disability from work, I am entitled to 10s. a week for the first year, about 7s. the second year, and after that I believe the pay is reduced to 3s. per week for life. Let me ask my fellow gardeners who are still sceptical on this point to compare this with the advantages offered by the Gardeners' Royal Benevolent Institution, even from a benefit point of view, where after subscribing a guinea for fifteen years, or £10 10s. down, a member is almost certain to be placed on the pension list if he is of good character and incapacitated from work and in want, receiving without any further cost or trouble to himself £20 a year for life, whether his life be short or long.

Another objection has occasionally been levelled at the Institution—viz., that some gardeners who had subscribed but little, and others who had not subscribed at all, were occasionally elected pensioners. On this point I may say that we must not lose sight of the fact that by far the largest proportion of the property of the Institution has been subscribed

by people out of pure benevolence for the relief of aged and destitute gardeners, and I for my part would be very sorry to see this principle of benevolence infringed upon or curtailed in any way; and I hope and believe it will not be allowed to impose a barrier to prevent subscriptions flowing in. The Committee, as is well known, have introduced a clause into their rules, giving almost absolute certainty of election to those who may have subscribed for fifteen years, and the new rule passed at the special general meeting (December, 1892) will give subscribers substantial advantage over non-subscribers, inasmuch that a subscriber for four years will have fifty votes credited to him, and fifty more added for every year subscribed afterwards up to fourteen years.

My appeal in favour of the Institution, even from a benefit and an investment point of view, will, I hope, commend itself to the judgment of gardeners. But I beg very respectfully to appeal to my brother gardeners from a higher level than a benefit one. That man's life is a poor and a barren life who lives entirely to himself, and nothing noble or good has ever yet been accomplished without a sacrifice of some sort.

The gardeners of the past half century (and others interested in gardening and gardeners) have built up a noble standard of garden charity, which is now shedding gleams of joy and brightness round the declining life of many of our fellow workers who have fallen helpless by the way. Let me, then, appeal to all gardeners and others associated with them in the calling, to rally round this splendid Institution, and to strengthen it with their active support, that all the deserving in our craft may claim a shelter under its wings in the time of adversity and want.—OWEN THOMAS, *The Royal Gardens, Windsor.*



CULTURAL JOTTINGS.

CULTIVATORS of plants for any purpose, but especially for the production of large blooms for exhibiting, will do well to bear in mind three very important details just now seasonable. The first is to lose no time in transferring the earliest plants from the shelves of a cool house to a cold frame. No matter how cool the house may be kept, the plants always exhibit a tendency to "run up" quickly if they remain indoors after March has expired.

The best means of keeping the plants dwarf should be adopted, and early frame treatment is a chief factor in the case. The pots should stand on a thick bed of ashes, and the glass be sound and clean. A position facing the south, and sheltered from north and easterly winds, should be chosen on account of the extra warmth thus gained.

The second point demanding rather more than ordinary consideration is that of judiciously supplying the plants with water. At this time of the year many of them have a tendency to change the colour of their leaves from a deep green to a pale hue, and in some instances they almost turn yellow. An excess of cold water is the main cause of such an unwelcome change. Some cultivators appear to forget the altered circumstances under which the plants are placed. When in the cool airy greenhouse much more moisture passes from the leaves than is the case when the plants are subjected to necessarily damp surroundings in frames. Tepid water only should be employed, from the rain water tank if possible. No plant should receive any till the soil exhibits signs of dryness; when the leaves turn suddenly pale, the roots of such plants have received a check, and cannot carry out their functions.

The third point is the admission of air to the plants in such a manner that they will benefit by the supply. Too often the lights are either tilted on the wrong side or drawn entirely off, exposing the plants to cutting cold east winds. Not only does such injudicious treatment check the growth suddenly, but is a precursor of mildew and aphids. Fresh air is absolutely necessary, but it must not be admitted in sharp currents. Tilt the lights on the opposite side to that from which the wind is blowing, and injury will be averted.—E. MOLYNEUX.

THE CHRYSANTHEMUM YEAR BOOK.

A VERY useful book, which will be looked forward to each year if kept strictly useful and impartial, but trade growers regard one article of nearly six pages as an advertisement in the body of the book, while other advertisers have to pay 21s a page, yet Mr. Dean would have the Committee accord a vote of thanks for that article which any of the other advertisers would gladly have thanked the Committee for granting the space; I for one. Mr. Dean is not in the trade. I commend "Fairplay" for his comments, for I simply like what is right, and have no desire to give offence. Every work is open to criticism, and it helps to make works more perfect in future.—W. WELLS.

PERMIT me to do justice to the N.C.S. Executive. Tardily aroused to the fact, no doubt, by my reminder, this body has at length admitted that it owed something, if but thanks, to those persons who contributed to the Year Book gratuitously, and thus made it so great a success that its profits may range from £20 to £25. Publishers ordinarily would, of course, recognise the value of contributions in a more practical way, especially when from those who are essentially of the literary cult; but there are some on the Executive rather too closely

identified with the Press, who may think that would be setting a vicious example. I have not heard that even the accomplished Editor has received other reward than has been meted out to the contributors, except—mark from heaven, save the mark—"Fairplay." Why do not the members clear out from the Committee its Augean stable of trade selfishness and exhibitor narrow-mindedness, and free it from its old parochial slough which has clung to the Society from its early Hackney days? A truly National Society should have higher aims. In one direction no Society could be better or more ably served than is it in its home and foreign Secretaries, but there the merit ends. Were a few gentlemen of Mr. Shea's type in control it would not have been needful for me to have publicly pointed out that the contributors to the Year Book had been by the Executive treated with contempt and indifference.—A. DEAN.

THE WILLIAM THOMSON MEMORIAL FUND.

SHORTLY after the lamented death of the grand old gardener above named, a project was mooted to raise a fund by which his memory could be kept green by the horticultural community. The proposal is now placed on a wider basis than was first suggested, and after mature consideration the form which the memorial should take has been determined. A large representative Committee has been formed, comprising nearly a hundred English, Irish, Scottish, and Welsh horticulturists, and the following circular has been issued, signed by Mr. J. G. Veitch as Honorary Secretary.

Royal Exotic Nursery, 544, King's Road, Chelsea, S.W.
March, 1895.

WILLIAM THOMSON MEMORIAL FUND.

DEAR SIR,—A fund is being raised to commemorate the services to horticulture of the late William Thomson of Clovenfords, the sum collected to be given to the Gardeners' Royal Benevolent Institution, and the Royal Gardeners' Orphan Fund. Should a sufficient sum be obtained it is proposed to keep a pensioner in perpetuity on the funds of each Institution. To enable this to be done a sum of £1250 is necessary; a perpetual pension to the G.R.B.I. requiring £750, and that to the R.G.O.F. £500, the power of electing these pensioners being in the hands of the Royal Caledonian Horticultural Society, Edinburgh.

Should a sufficient sum not be obtained for this purpose, it is proposed to divide the amount raised between the two Institutions proportionately.

It is hoped that a very liberal response will be received, not only on account of the esteem in which Mr. Thomson was held, but also on account of the object to which the Fund is to be devoted.

A Committee, the names of which you will find annexed [in the circular] has been formed to collect subscriptions, and I trust you will become a contributor to this very laudable object.—I am, dear Sir, yours truly,
J. G. VEITCH,

To whom, or to any member of the English Committee, subscriptions may be sent.

We shall rejoice if the amount desired can be raised, both in the interests of aged and needy gardeners and of helpless orphans, equally with the well-merited tribute that will be so appropriately paid to the worth of one of the most accomplished and worthy of British gardeners, who left the world the better for his labours in the cause of horticulture.

The following donations have been promised, the contributors, except those indicated by an asterisk, constituting the Executive Committee for England:—

	£	s.	d.		£	s.	d.
Barron, A. F.	1	1	0	Norman, G.	0	10	0
Bennett, W.	1	1	0	Sander, F.	10	10	0
Christie, A. D.	1	1	0	Smith, J.	1	1	0
Cordonnier, A.	1	0	0	Tait, R.	5	5	0
Findlay, Bruce	5	0	0	Thomas, O.	2	2	0
Henderson, A.	2	2	0	Veitch, H. J. (Chairman)	10	10	0
Kay, P. E.	5	5	0	*Veitch, Mrs. H. J.	2	2	0
Masters, Dr.	1	1	0	*Veitch, J. H.	1	1	0
Miller, J. W.	1	1	0	Veitch, J. G. (Hon. Sec.)	1	1	0
Monro, G.	10	10	0	Williams, H.	5	5	0
*Monro, A. J.	2	2	0	Wythes, G.	1	1	0

CORN SALAD.

THOSE who still cling to the old custom of sowing a good breadth of this excellent edible, to provide plants for winter and spring use, have this year just cause to congratulate themselves, for Lettuces have been unusually scarce, and the absence of warmth and sunshine will greatly retard the progress of early crops both in frames and the open air. Corn Salad, on the contrary, seems to be as abundant as usual, as beyond suspending growth for a time the late severe winter does not seem to have affected it the least, at least that is the case with our own plants. Throughout the winter we have had plants available for use, and at the present time the growth is quite young and fresh, although I think it would puzzle most gardeners to cut salading of any other kind from the open air at this early date.

Although this Corn Salad, or Lamb's Lettuce, is comparatively little grown now, it always seems to be appreciated at table, and those who have to keep up a regular supply of salading will do well to bear this in mind, and make a sowing when the month of August comes round. It is not often sown in the spring because throughout the summer there is generally abundance of Lettuce. Where it has become an established favourite it is liked occasionally in the summer time, as it helps to make a greater variety for the salad bowl, and moreover

frequently proves useful when Lettuce play us the freak of bolting wholesale, thus breaking, as it were, a few links in our chain of supply.

South or west borders are capital positions in which to sow at the present time. A foot apart is a convenient distance for the rows; then if the seedlings are thinned to 3 inches asunder, every alternate plant should be used in a young state to give the remaining ones room to develop.—A LAMB.

ROYAL HORTICULTURAL SOCIETY.

MARCH 26TH.

SCIENTIFIC COMMITTEE.—Present: Dr. M. T. Masters (in the chair); Mr. McLachlan, Mr. Morris, Mr. Sutton, Prof. Müller, and Rev. G. Henslow (Hon. Sec.).

Orchid Leaves Decayed.—The report from Kew on the specimens brought to the last meeting was as follows:—"Fungi and bacteria are absent from all the specimens, and the disease is entirely physiological, being caused by the substance of the leaf at particular points becoming saturated with water. This causes the formation of numerous oil globules, followed by degeneration of the chlorophyll corpuscles and cell contents. This disease is caused by the activity of the roots being in excess of that of the leaves. Less moisture at the roots, and a free circulation of air with a not too damp atmosphere, is the remedy."

Dendrobium with Two Lips.—Dr. Masters had examined a flower of the plant exhibited at the last meeting, and found that the extra lip was accompanied with a bifurcation of the single central cord belonging to a normal labellum, so that it was not due to a fusion of two organs, but to multiplication by choris of one.

Ferns Injured by Mice.—Mr. McLachlan described the injuries done to Ferns during the hard frost by mice. Mr. Morris attributed it to a want of water, as he had experienced a similar trouble on board ship, when a consignment of Cinchonas and other plants was sent from Jamaica to New Orleans, and was much injured by rats and mice. By placing pans of water among them, however, no further injury occurred.

Aspidistra Attacked by Fungi.—Dr. Masters exhibited a leaf much decayed in parts with peculiar black marks on it. It was referred to Kew for examination.

Odontoglossum cirrhosum.—A specimen was sent by Mr. Smee, remarkable for the flowers being associated with leafy bracts.

Hyacinth Malformed.—A peculiar specimen was sent by Sir Ch. Strickland. The stem was exceedingly slender, the flowers remote, small, double, and campanulate; probably an accidental variation from impoverishment.

Galls on Leptospermum.—Dr. Masters showed a specimen of these received from Baron Von Müller from Australia. Mr. McLachlan undertook to examine them.

Schinus Molle.—A photograph of a remarkably fine tree, apparently some 25 feet in height, growing in Graham's Town, was shown by Dr. Masters.

Bulbophyllum burfordiense.—This remarkable Orchid was exhibited by Sir Trevor Lawrence, Bart. It is probably by far the largest flowering species of this genus. Its peculiarity, however, consists in the absence of petals, as there are only three large green sepals, the posterior one being spotted with white.

SPINACH.

WHEN it was the other day remarked that, because so close growing, Winter Spinach has largely escaped the destruction wrought amongst other winter leaf vegetables, I had brought to mind two very extensive breadths I had seen on a Surrey farm only a few days before, where an August sowing was decimated, and a later one made in September had stood remarkably well. That fact shows the great value of late sowings for reserve, even if not wanted; for it very frequently happens that not only Spinach, but Onions, Turnips, and Cabbages, when thus sown so late stand hard winters better, but prove invaluable in the spring, when the earlier sowings have been destroyed. If not wanted, at least the sowings cost little, do not occupy much ground, and may then be dug in as a green manure crop. But then it is evident, so far as Spinach is concerned, that, welcome as a late sowing may be to furnish late pickings in April, it is really through the winter months that the need for this leaf product is greatest.

It will be now very interesting to learn whether round-seeded kinds have proved to be hardier or have shown more endurance than have prickly varieties. The breadths that I referred to were of the usual prickly or rough-seeded order, as it has hardly yet entered into the minds of market growers to sow round Spinach for winter use. But very likely many gardeners have done so, and they can, with their now ample experience, tell us which form has withstood the severe winter best. Probably the effects of the winter has led many growers to be quite out of respect for either variety. We may feel the same with regard to many other plants usually esteemed hardy; but it would be most unwise to assume simply because of a great garden disaster that things are to be ever such. We may have no such destruction amongst vegetables again for perhaps twenty years, and if we do then is it too much to hope that horticulture will, ere that time, have so far advanced that disasters of this sort may be better prepared for than they are to-day?

It will be a long time ere in any garden we make such provision against hard weather as shall enable us to have most of our green winter crops under glass. There may indeed be said to exist a certain

amount of absurdity in the suggestion, and yet where is the gardener who to-day would laugh at the proposal if he were the possessor in a big span frame or other protection of a fine bed of Spinach, or dwarf Cabbages, or of late Broccoli, or indeed of anything else of great use, but of which now he has none whatever? Why should our glass protection be so rigidly limited to the ordinary heated house, or the frame ground? How different might have been matters with thousands of gardeners if they had had at disposal, to plant or sow thickly last autumn, numerous light wooden span or lean-to frames; or having on warm borders, beds, or blocks, specially prepared by sowing or planting have, the moment frost became imminent, these frames or protectors dropped over them, and as far as practicable made air-tight. The results would have been most valuable, without doubt. Of course the benefits would have been all the greater were it possible to have these frames gently warmed by a couple of 3-inch pipes, because even so little of warmth allied to the undoubted protection the frames afford, would have done wonders in warding off absolute injury.

Whilst every year we recognise more and more the need of glass for fruit, flower, and Tomato culture, we have hardly given to vegetables the consideration that they merit. Well, the recent winter has taught us a lesson, and it is for us to utilise it. We cannot hope, of course, to cover in whole gardens with glass, much less fields, and for defects in our climate must always suffer; but all the same, in many ways much may be done to check harm amongst our winter vegetable crops. It is worth making a start in that direction with so excellent a kind as good Spinach.—A. D.

SPRING FLOWERS.

AFTER all, there is no season in the whole year whose flowers are so welcomed and appreciated as those of the spring. It will doubtless be even more so this year. For many weeks the whole country has been snow-covered and ice-bound, and while in this condition it was difficult to bring the mind to think of either spring or its flowers. Happily, this has all now passed away; the sun is gaining power, days are lengthening, birds have commenced singing, and those pleasing harbingers the Snow-drop and Crocus have pushed forward their blooms in spite of severe weather, as if to convey to us the news that winter's chain is broken, and there are better days near at hand.

Ardent cultivators of hardy spring flowers, and happily there are many, will now be turning their attention towards them, and gardens that can boast a goodly collection of these charming species will enjoy a season of unsurpassable beauty months before those where only summer flowers are grown. A great loss sustained by those who only follow the system of summer bedding is the complete exclusion of flowers during the spring. This state of things may be often noticed, and the folly of the system marked in paying a visit to some old-fashioned garden during the month of April. There, perchance, will be found Primroses of numerous colours, sweet Violets, Pansies, Daffodils, blue Anemones, purple Aubrietia, and many others; while the surrounding country lanes and woodlands are gay with Cuckoo Flowers, Anemones, Bluebells, and Violets.

Many much more fashionable and pretentious gardens will on the contrary be found dull and blank at this season of the year, with but little more signs of the spring than were apparent months before. Surely by setting apart a portion for the cultivation of spring flowers, the dull aspect in many instances at this period of the year might be rapidly transformed, and the time when the garden is gay with flowers be extended considerably. The best way of bringing this about is an easy one. That is by procuring a number of plants that are hardy, and will be likely to multiply. All plants are not suitable for these conditions, but there are many that flourish profusely. Much care is necessary in choosing situations for hardy favourites, as some delight in rather dry sunny positions, whilst others revel under conditions of moisture and damp.

Amongst the old-fashioned spring flowers that may be raised from seeds sown the preceding year, none occupies a higher position than the Wallflower. It may be found flowering profusely in almost any garden, even where methods of spring bedding are not strictly adhered to. Easy of cultivation, pleasing in colour, and sweet in scent, in spite of new additions this old-timed favourite will never be displaced. Then there are Polyanthus, Cowslips, Auriculas, Forget-me-nots, and Daisies, all of which supply abundance of flowers for cutting, and are also easily propagated by division.

Bulbs, too, are annually becoming more popular amongst spring flowers, and need we wonder at this? for the brightness of colour of many of them, and the pleasing form of others, must make them general favourites.

It seems needless to dwell upon the many different species of bulbous flowering plants, as they are so well known. Common Daffodils will flourish under almost any conditions, as will the different forms of Pheasant's-eye or Poet's Narcissus, while the more rare varieties of the former, such as Sir Watkin, Horsefieldi, and others, will amply repay for careful cultivation. Tulips of all kinds, single and double, the qualities and properties of which have been admirably described in recent numbers of the *Journal of Horticulture*, are indispensable, with their varying forms and pleasing colour. Hyacinths also claim attention, and will in the future, as they have in the past, play a conspicuous part among the beauties of the spring. Ranunculus in many gardens do not receive the attention they deserve, for if the colours are carefully blended they have no superiors.

Among the hardy plants which many of them require but little attention are *Doronicums* with their bright yellow star-like flowers; *Anemones* of several varieties, all free-blooming and useful; *Saxifragas*, *Primula cortusoides amoena*, and others; *Myosotis*, *Alyssum saxatile*, *Scilla*, and *Aconites*. These are but a few in the great many, each and all of which add so much to the floral beauty of our gardens in the spring.—G. H. H.

SHORTIA GALACIFOLIA.

At a recent meeting of the Royal Horticultural Society Mr. F. Cornish, gardener to the Dowager Lady Bowman, Joldwynds, Dorking, staged a magnificent example of this charming plant and was deservedly awarded a cultural commendation, for it is seldom we see plants of it so profusely bloomed. *S. galacifolia* (see illustration, fig. 52) is a hardy herbaceous perennial of a dwarf tufted habit of growth, with leaves and flowers as represented in the engraving. The latter are pure white, with a tinge of pink when about to fade. It is a native of the mountains of Carolina, and though it has been known for some time is still not widely grown.

VINES AND VINERIES.

AN opinion which differs from another need not be altogether antagonistic. The conclusions which Mr. Kemp, your able correspondent, sustains on page 269 with regard to the damage which the scorching rays of the sun often inflict on the foliage of the Vine under glass can be obviated by an efficient system of ventilation and proper attention, therefore the cause of the injury lies not in the sun, but in the construction more than the position of the vineries, and perhaps also to the overtaxed energies of the cultivator.

It has frequently been observed in lean-to vineries that the scorching of the foliage is generally most severe near to the apex of the house, and under the glass where there is no immediate ventilation, therefore such houses should possess a continuous system of ventilation, and not merely every other light. Horticulturists, as a rule, worship the sun in all its brilliancy, and must have the most favoured position for the vineries, where the first rays of the morning sun are not observed and the meridian bright, and where the temporary gleams of sunset cast the shadows of the glorious fruit along the rafters.

There is no other fruit than the Grape Vine that requires greater skill and more studious attention to bring the produce to anything like perfection, and for that purpose abundance of sunshine, no less than an abundant supply of fresh air on all favourable opportunities, not only to give to the fruit the best colour and highest flavour, but also to give to the foliage a robust, leathery nature. When the Vines have been too much coddled the foliage is apt to be deficient in substance, and the evil of scorching may be intensified.

It is always interesting to read and have something to say about the cultivation of the Grape Vine. Whether this popularity of the Vine arises from the sacred incident of "Noah" being an eminent and successful cultivator of the "generous Vine," or that there be some potent spell about the plant, it is an acknowledged fact that the cultivation of the Vine was well known to the ancients, for do they not say, "Never offer to the Gods wine produced from the Vine unpruned." In the mind's eye one can see the adventurers spying out the land, and their wondrous surprise in beholding the gigantic bunch of Grapes, and their determination to carry it back with them as a proof of the great virtue of the locality, and how to do so without bruise or blemish to the fruit if not the blooms, they hit on the happy medium which is so well known to readers of sacred history.

Modern Grape growers have not sufficient data to prove that they can make a record against primæval culture beyond the deducible fact that the Escholian bunch of Grapes must have been of a most remarkable character, and without information as to colour, weight or dimension, as such it must remain; nor are we told whether the fruit had been fostered by the hands of Nature, or cultivated by some peace-loving member of ancient society, who possibly might have sat at the feet of the great horticulturist. If he did so or not, through course of time he would learn that the mysteriousness of the capabilities of the Vine lay in a careful and studious attention to all the requirements of the plant, and would naturally come to the conclusion that before he could have good fruit, whether on the spur or long rod system of cultivation, the young wood must possess a robust nature and be thoroughly ripened, and for that important factor in good Grape growing to be accomplished, no one can say that we have too much sunshine anywhere in the British islands.—A. M.

THE DESTRUCTIVE GALE.

NEVER do I remember a more damaging wind than occurred about midday on March 24th. In some villages in this neighbourhood hardly a house escaped damage; indeed, with some, the roofs were blown entirely off. In the fen country adjoining, the reports coming in of the sad havoc to buildings are appalling. The Wheat plant in many places is blown out of the light peaty soil that abounds there. Churches and public buildings in the towns have also suffered.

In the gardens here I am sorry to record a heavy loss of fine Conifers.

Large Cedars of Lebanon are completely destroyed, only one left out of many. Three large *Abies princeps*, one 63 feet high, all handsome specimens, were uprooted. A very fine tree of *Abies lasiocarpa*, 65 feet high, with an upright trunk 8 feet round near the base, was completely destroyed; also large specimens of the Californian Cypress, *C. macrocarpa*, several *C. Lawsoniana*, *Pinus pinaster*, large Scotch Pines 60 to 70 feet high, *P. strobus*, and many others.

There are six large specimens of *Libocedrus decurrens*, but only one succumbed. Large trees of Ash and Elm in hedgerows lie about in all directions. Larches of from twenty to thirty years' growth were swept down in a wholesale manner. Many of the trees in the pleasure grounds noted above fell like ninepins. It will be heavy labour to clear away, for many that are left standing are badly broken.

The trees that stood the test of the gale best are the *Wellingtonia gigantea*, for out of 300 large specimens only one has blown aside. One of the best of the Conifers, *Thuja gigantea*, has stood well, not one being



FIG. 52.—SHORTIA GALACIFOLIA.

shifted or broken. It makes fine upright trunks and splendid foliage here. A great many are close on 60 feet high. Others that have stood well are *Taxodium sempervirens*, *Cedrus atlantica*, *C. deodara*, *Salisburia*, *Taxodium distichum*, *Abies Nordmanniana*, *A. amabilis*, *A. Douglasii*, *A. grandis*, *A. morinda*, *Pinus ponderosa*, *P. macrocarpa*, *P. austriaca*, *P. Jeffreyi*, and *P. Coulteri*. Some that were only partly blown over we have raised upright with strong ropes and pulleys and supported with long props.—A. HARDING, Orton Gardens, Peterborough.



HARDY FRUIT GARDEN.

Grafting Fruit Trees.—The operation of grafting can be performed somewhat later than usual this season, owing to the protracted rest all fruit trees have had with the severe winter. In consequence the sap takes longer in actively circulating, though with mild, favourable weather it will rise strongly, and probably quickly when once on the move. It is, therefore, imperative that all preliminary details be completed, so that when the opportune moment arrives the scions can

be inserted readily with reasonable prospects of speedy union. The scions, of course, will be in quite a dormant condition, being cut from the trees some time ago and laid-in in moist soil to retard the pushing of the buds. There they should remain until wanted for the purpose of preparing for insertion.

Preparing Grafting Clay.—Although prepared grafting wax is frequently used, a mixture of clay and manure is preferred by many. Obtain some good, strong, adhesive clay, freeing it of stones; then beat it into fine particles and make it plastic with water. Keep it moist until grafting time, when add, or it may be introduced at once, equal parts of horse droppings and cow manure to two parts of clay, blending all well together. Rub the horse manure through a sieve, and take out any long straw which may be contained in fresh cow manure, which ought to be employed.

Heading Down the Stocks.—Trees should be headed down at once to the point where grafts are to be inserted, especially where strong limbs have to be cut down. Select a position where the bark is smooth, and near the base or origin of branches. On large old trees four or five branches are enough to retain, selecting the best placed. The diameter of the branches is immaterial, as several grafts can be inserted on one, and when it is intended to replace inferior varieties of Apples or Pears by superior on old trees this is the best method, operating mainly by crown grafting, the cleft and notch process also being practised.

Crown Grafting.—This is the most common form of renovating old trees, and is applicable wherever branches are over an inch in diameter. If the branches are shortened early in the season a further portion may be removed now, so that the working is carried out with fresh wood and bark.

Preparing the Stocks.—With a very sharp knife make a clean slit in the bark, commencing from the top and extending downwards about 2 inches. These slits should not be less than 2 inches apart, and must be made just prior to inserting the scions.

Preparing the Scions.—Select well ripened wood of last season's growth with plump dormant wood buds. The central part of shoots is usually the best. A portion with five or six buds may be selected. Cut the base level, then make a sloping cut to it corresponding in length to the slit in the stock. At the point where the cut commences make a transverse incision, thus forming a small shoulder by which the scion when in position will be seated on the stock, holding it there securely. Reduce the length of the scion to four buds, or less if at all weakly.

Inserting the Scions.—The scions being in readiness, with a hard wedge-shaped strip of wood the same size and thickness as a scion, lift the bark carefully on each side of the cut in the stock. Withdraw and introduce the scion, pushing it gently into position until seated on the stock, when it can go no further. It is important that the inner bark or layer of alburnous matter meet exactly together, as it is at this point where the union takes place. On stocks of large diameter three scions may be affixed with advantage.

Securing Stock and Scion.—Bast matting is the best material to wind round for holding the parts firmly together. This must be effected without binding too tightly. To each scion attach a stick to prevent possible loosening by wind. Apply the grafting clay over all apertures, and cover the top of the stock with a good coating, using a little fine sand on the hands when finishing off so that the clay can be left smoothly completed. Grafting wax is applied with a brush, merely covering all joinings to exclude air, which is essential in effecting a union. The ordinary clay covering when dry frequently cracks. Such openings must be closed as often as made until growth is so far advanced that the clay can be gradually dispensed with.

Cleft Grafting.—In this method it is necessary to split the stock down the centre with a chisel and mallet, holding the cleft thus made open with the chisel or a wedge. The scions are cut wedge-shaped and as long as the cleft is deep, about 2 or 3 inches. One may be inserted on each if the branch is of large diameter. When small, the top of the stock is cut sloping, and the scion inserted on the highest side, one only being used. More than two grafts cannot be employed on one branch with this method. They must be made to fit bark to bark along their entire length, so that the alburnous matter or inner vital tissue of both stock and scion approach each other exactly. Then by taking out the wedge in the centre the cleft closes tightly, holding the scions very firmly in position. The greatest disadvantage in this method is the aperture left in the middle of the stock, but this must be covered securely with grafting wax to exclude air and moisture, the outside joinings of stock and scion being treated likewise.

Notch Grafting.—This is effected by cutting a triangular notch through the bark and into the wood, the same width as that of the scions to be used. The latter must be cut wedge-shaped down two sides and made to fit truly, binding securely in with matting, afterwards claying or waxing over all joinings.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest Forced Trees.*—The very early varieties, such as Alexander, Waterloo, Early Beatrice, and Early Louise Peaches, Early Rivers and Advance Nectarines, will soon give indications of ripening, when syringing must cease, and the leaves that shade or overhang the fruit be drawn aside, raising any away from the light, by means of laths placed across the wires of the trellis, so that the apex will be brought directly to it. The ripening of the fruit of these varieties may be accelerated by maintaining a night temperature of 65° to 70°, 70° to 75° by day artificially, and 80° to 85° or 90° through the day from sun heat. In the case of such standard varieties as Hale's

Early, Stirling Castle, and Royal George Peaches, Lord Napier, Elruge, and Goldoni Nectarines, the trees should be allowed time during the stoning process, maintaining the temperature at 60° to 65° at night, 70° to 75° by day with sun heat, and about 65° by day in dull weather, carefully avoiding sudden fluctuations or depressions. Tie the shoots to the trellis as they advance, and regulate the growths for future bearing, so as not to have them too crowded, as by giving the growths ample room the fruit is more exposed to the sun and air, and the wood for another year stouter and better ripened. Basal shoots for next year's bearing disposed to grow more than 14 or 15 inches may have the points pinched out, and the laterals and subsequent growths stopped to one leaf as made. These remarks do not apply to extensions, except as regards the laterals. When the stoning process is over, which may be ascertained by testing a few fruits with a knife, the fruit will require regulating for the swelling period. Very vigorous examples may be allowed to carry a few more than those that are weakly, but on no account unnecessarily tax the trees. Weakly trees should be supplied with nourishing food, such as top-dressings of phosphatic, potassic, and nitrogenic manure, washed in or in solution, not allowing the trees in any case to suffer for lack of moisture at the roots, and keeping the soil uniformly moist by a light mulch of partially decayed manure. This will secure conditions favourable to the swelling of the fruit to a good size, especially if the temperature be raised with corresponding moisture, as advised for the very early varieties.

Trees Started at the New Year.—As stoning has now commenced care must be taken to avoid sudden checks by injudicious ventilation, cold air in the daytime and too high a temperature at night. A night temperature of 60° to 65°, 5° less on cold nights, and 65° by day in dull weather, with 70° to 75° from sun heat, will be quite sufficient, and better for the trees and crop than a higher range of heat. Syringe the trees twice a day in favourable weather, so as to keep them free from red spider. Maintain a due moisture at the roots, but avoid stimulating food, as provocatives of growth do not favour stoning, yet weakly trees should have a nourishing dietary of superphosphate and muriate of potash, about three parts the former to one part of the latter, using 4 ozs. per square yard. This dressing may be applied at intervals of three or four, or four or six weeks, as the trees stand in need of nutriment.

Trees Started Early in February.—The fruit has set and is swelling satisfactorily. Syringe the trees in the morning and afternoon, which will assist the fruit in swelling and casting off the remains of the flowers, and prevent attacks of red spider and aphides; but avoid heavy syringings, and an occasional one in dull weather will be all that is needed until the foliage is more advanced. Allow a temperature at night of 55° or 60° in mild weather, ventilating from 65°, permitting an advance from sun heat to 70° or 75°, but with full ventilation.

Disbudding.—This important operation must be done with care and judgment, commencing as soon as the shoots can be displaced with the finger, and following up day by day until only the growths required for future bearing, attracting the sap to the fruits or for furnishing the trees, are left. A shoot must be retained from the base of the growths now bearing, and another on a level with or above the fruit; the latter not being required for extension should be stopped at the third good leaf and subsequent growths to one as made. In the case of trees extending it will be necessary to leave shoots about 15 inches apart along last year's wood, calculating from the base on the upper or both sides of the growth as space permits, the terminals being trained in their full length, and the growths for forming the main branches being about 1 foot asunder. Avoid close training, as it results in weak overcrowded growth, not nearly so satisfactory as that fully exposed to light and air. Stop laterals on extensions to one leaf, and sub-laterals to a similar extent of growth.

Thinning the Fruits.—When the size of horse beans, the fruit will swell or drop. The latter are not fertilised, and the others will have degrees of vigour, which must be utilised by removing the weakest first, commencing with the least vigorous parts of the trees, thinning proportionately less on strong than on weak wood, which will tend to the equalisation of the vigour of the tree. Regard must be had to the position of the fruits, leaving the most promising on the upper side of the growths for receiving most light and air, and the fruit ought not ultimately to be left closer than one to every square foot of trellis covered by the trees, but the smaller varieties and Nectarines may have one to every 9 inches square of trellis covered with growth. The first thinning should be effected when the fruit is fairly set and commencing to swell, the second when the size of marbles, when a few more only need be left than is required for the crop, looking over the trees again when the size of walnuts, then very few indeed over the intended crop should be left, though there must always be a margin for casualties, yet the less the trees are burdened during the stoning process the more likely is that to be satisfactorily effected.

Syringing.—This operation may be overdone, and some are worse than useless. It is overdone when the water hangs on the trees for a considerable time, often through the night, destroying their tissue and inducing a soft sappy growth. It is worse than useless when a squirt is given here and there, and so lightly as not to dislodge dust and vermin. Vigorous syringing means the forcible ejection of red spider and aphides from every part of the trees without tearing the foliage into shreds or otherwise damaging it, and this should be done twice a day when the weather is bright, the afternoon syringing being done at closing time, always sufficiently early to allow the trees to become fairly dry before night. If the trees have water hanging from the edges of the leaves in the morning omit the afternoon syringing, which, however, will only be required for very vigorous trees.

Tying-in the Growths.—Attend to this early, as it is necessary to give the growths the desired inclination, which must be done carefully so as not to bring the shoots down too sharply, for this may snap off the points or give an undesirable conformation by throttling them. This must be avoided by the exercise of judgment, and in securing the shoots to the trellis sufficient space must be left in the ligatures for the swelling of the growths, otherwise gumming may be induced, as well as the contraction of the growth and consequent danger of breakage.

Trees Started Early in March.—Trees in full blossom ought not to be syringed; indeed, it should not be practised after the anthers show clear of the corolla, but a genial condition of the atmosphere be secured by damping the floor and border in the morning and early afternoon on bright days, omitting it altogether in dull, cold moist weather. The night temperature should be 50°, falling 5° in cold weather; 50° to 55° by day, with a rather free circulation of air; and 65° from sun heat, with full ventilation, preventing a vitiated atmosphere by admitting a little air constantly by the top ventilators.

Latest Houses.—With the flowers opening and abundant thin them well on the under side of the shoots. Assist fertilisation by shaking the trees daily from the first pollen ripening until the last of the blossoms need attention, selecting the early part of fine days when artificial impregnation is resorted to, which is desirably effected by means of a camel's-hair brush, feather, or some other light substance. Any trees deficient in pollen, as the large-flowered varieties sometimes are, should have some taken from those that afford it abundantly, and this applied carefully to the stigmas will usually afford good results. Maintain a temperature of 40° to 45° at night, 50° to 55° by day, in all cases accompanied by slight ventilation at the top of the house, which must be increased when the temperature reaches 50°, and be full at 65°.

Unheated Houses.—The buds of fruit trees in these are fast expanding, yet the house should be kept as cool as possible by free air circulation. Ventilate when the flowers expand at 50°, and increase it with the advancing temperature, not allowing an advance above 65° without full ventilation top and bottom, and close the house at 65° when there is danger of a severe frosty night, but leave on a little air to allow of moisture escaping, not closing entirely until the actual prevalence externally of frost. In mild weather leave the ventilators open when the temperature is over 50°. Where there is an abundance of blossom buds thin them carefully, removing those on the under side of the growths.

Figs.—**Earliest Forced Trees in Pots.**—The fruits of Early Violet and St. John's ripen on trees started in November or early in December during April, or under hard forcing in March, and, though poor in size and quality as compared with the luscious Brown Turkey and White Marseilles, are desirable for early dishes. Where ripening commences gradually reduce the atmospheric moisture, and admit air constantly by the top ventilators, as a circulation of rather warmer and drier air is necessary for securing flavour and thorough ripening. When the fruit of the larger varieties commences ripening the supply of water at the roots should be gradually reduced, yet affording sufficient to keep the foliage healthy, withholding it from the fruit and ventilating freely.

Early Forced Planted-out Trees.—Fig trees always do best when somewhat restricted at the roots, and surface fibres encouraged and kept active by judicious top-dressings of rich material. Good turfy loam, horse droppings, and old mortar rubbish in equal parts, favour an abundant formation of fibres, and these obtained feeding is an easy matter. To insure uniform moisture a light mulching of decayed manure serves that end and is a source of nourishment, this being added to from time to time so as to keep about an inch thickness. Liberal supplies of water or liquid manure will be necessary to assist in swelling the fruits satisfactorily. Continue to pinch out the points of the shoots for forming spurs, and thin all crowded growths, or preferably prevent these by timely disbudding. Fig trees cannot have too much light, the growths being fully exposed to the sun. The temperature may now be increased to 60° to 65° at night, 70° to 75° by day with gleams of sun, and 80° to 85° or 90° under a cloudless sky. Attend to tying in the extensions and successional growths, allowing space for the shoots thickening.

Raising Young Trees.—If it be desired to increase the stock, cuttings may be inserted, selecting well ripened shoots of about 6 inches length, taking them off with a heel or portion of last year's wood attached. They root readily in bottom heat, and are best potted in 3-inch pots. When rooted shift without much delay into 5-inch pots, and when they fill the pots with roots transfer to pots a couple of inches larger, but avoid overpotting. Good drainage is necessary, firm potting essential, and turfy loam, with a sixth of old mortar rubbish and a fifth of thoroughly decayed manure, forms a suitable compost.

Cucumbers.—These plants come more to grief than any other, in consequence of the forcing nature of the treatment, the thing being to get as much hulk of the most tempting colour in the least time as practicable. Nitrogen and a close moist and high atmosphere secure these desiderata at least expense, but there are more failures under such régime than a more rational procedure. Plants that have been in bearing all the winter are certainly benefited by nitrogenous substances, which, to be of profit, must be accompanied by a corresponding root action, and there is nothing so favourable thereto as fresh, sweet, rich lumpy compost. The soil, therefore, may be removed with a handfork, clearing away as much of the old as practicable without prejudice to the roots, and fill with the compost described, rammed down firmly. Stopping, training, and cutting out the old growths must be followed up, and abundant waterings given as necessary. Assist plants in full bearing with liquid manure or top-dressings of chemical manures washed in. Earth up the roots occasionally, using warmed compost. Damp the

floors about 8 A.M. and 3 P.M., the foliage being lightly syringed on fine afternoons. There ought not to be any delay in having the blinds ready where that form of shading is adopted, so that they can be employed for an hour or two at midday when the sun is brightest, especially after a period of dull weather, as then it is most needed, and unless given serious consequences may follow.

Melons.—In the earlier houses the fruit has set, or is setting, and when the fruits are getting heavy supports must be afforded. Half-inch boards 6 or 7 inches square, with a hole through each corner, and suspended by four pieces of string or wire from the trellis in a slanting direction to prevent water lodging, may be used for the purpose. Remove superfluous fruits and all flowers from such plants, also unrequired growths, stopping and tying as necessary. Afford efficient supplies of water, giving top-dressings of nourishing food or liquid manure, maintaining a free but not luxuriant growth. Maintain a good atmospheric moisture by damping early in the morning and afternoon, syringing the plants lightly on bright afternoons about 3 P.M. Late plants showing fruit should, unless abundant and the plant vigorous, have the first blossoms removed, it being important that the pistillate flowers be nearly of one stage of growth. Secure a somewhat higher temperature and drier atmosphere during the setting, only affording as much moisture at the roots as will prevent flagging. Fertilise the blossoms when fully expanded, stopping the shoots one joint beyond the fruit, but otherwise employ the knife as little as possible during the setting period. In pits and frames a good bottom heat must be maintained, and night coverings employed to retain the requisite temperature.

THE FLOWER GARDEN.

Antirrhinums.—The dwarf white, yellow, and crimson forms promise to become very popular as hedging plants. They thrive and flower grandly during a dry hot summer, and are quite as effective in a wet season. The best plants are those that have been raised from cuttings in the autumn. They must not be left standing thickly together in rough frames and hand-lights, but should be given more room at once. Bed them out temporarily in fairly good soil and about 4 inches apart each way, when they will be ready for planting by the middle of May. They are grand in masses, and cutting their first strong flower spikes benefits them considerably. Any old plants that have survived the winter should be taken good care of, as they will give an early display.

Early Flowering Chrysanthemums.—There are a considerable number of summer and autumn flowering Chrysanthemums which are very effective either in masses or mixed borders. Those who left the whole of their stock in the open ground will most probably have to start afresh. If, however, some of the old plants are still alive these might well be lifted and placed in a cold frame with a view to earlier and better cuttings than can often be had from unprotected plants. These late cuttings should be placed thinly in boxes of fine sandy soil, and given the benefit of gentle heat and shade as required, pinching out the tops as soon as rooted. After they have formed fresh growths harden and plant out in good soil where they are to flower. For planting in beds in succession to Asters, Poppies, Campanulas or other plants that cease to be gay soon after July, the preference may well be given to Madame Desgrange, white, Lady Fitzwygram, an improvement on the latter, and Mrs. Hawkins, yellow. There must be no late stopping of these, and strong branching plants in 8-inch pots should be ready for the beds directly they are cleared of their other occupants.

Fuchsias.—Old plants of these in pots and tubs have kept better in cellars than in outhouses, and all that are alive ought now to be growing afresh. If they are to flower in the open it is a mistake to start them under glass, as this is liable to unduly forward them. The young wood must first be shortened back, preferably with pruning scissors, to within one or two joints of where they last started, leaders perhaps having a greater length reserved. If the tops are dead cut them down to where they are alive. When the plants are breaking afresh is the time to repot or retub. Carefully turn out, freely reduce or pick away much of the old soil from the roots, and shorten the latter somewhat, replacing in pots or tubs of much the same size as before. They will then have abundance of a rather rich loamy compost, with a sprinkling of bonemeal in the soil, in which to root. Keep the plants in a sunny sheltered place, and water sparingly at first. Stop the young shoots if taking the lead unduly, or if more growths are required to form a presentable bush.

Isolepis gracilis.—Single plants of this elegant Grass are frequently used, and sometimes whole patches, with good effect in summer bedding arrangements. It is small fresh plants that should be used. Roughly shorten some of the latter, divide into small pieces, each with a few roots attached, and place these in threes just clear of each other in 2½-inch pots. Kept in heat till well established, neat little plants will be ready for the beds in June, and which will be certain to grow freely all the summer.

Cyperus natalensis.—This succeeds admirably as a hedging plant, and is effective dotted among trailing flowering plants, or even with taller-growing tuberous Begonias. Single plants are not nearly so graceful as small patches, and instead, therefore, of pricking out the small seedlings that come up so quickly and abundantly in heat singly in small pots, lift and repot in patches of not less than three plants. They soon fill the pots with roots, and may be given a small shift so as to have good sized plants for bedding out early in June.

Dwarf Nasturtiums.—Dwarf or Tom Thumb Nasturtiums, properly managed, are even more gorgeous than Pelargoniums in a dry

season, and quite eclipse them in showery weather. What they ought to have are sunny open beds or banks, poor soil, and ample room. The surest way to have them regular and even is to raise the plants singly in small pots, late in April or early in May being soon enough to sow the seeds, and then, if eventually planted out a foot apart each way in separate colours, there will be no undue crowding, and a continuous display of flowers be obtained. The seeds may also be sown now, or a little later, where the plants are to flower, allowing for failures, and thinning out where the seedlings come up too thickly.

Salpiglossis.—This class of annual is somewhat neglected. The large flowering type dotted thinly among a carpet of Mignonette would look well, and be a novel and cheap bed. Both should be sown now thinly and broadcast, covering the seeds with fine soil, or the Mignonette may be sown now, and the Salpiglossis be raised under glass and planted out of small pots. The dwarf Salpiglossis deserve a bed by themselves, and should be sown at once where they are to flower, raising a few in pots or boxes in readiness for any blanks that may occur.

East Lothian and other Stocks.—Ten-week Stocks are very handsome while they last, but are soon over. Not so the East Lothian, Earliest Flowering Autumn, and other intermediate types. If these latter are sown now in gentle heat, and the seedlings duly pricked out in temporary beds or in boxes, they will be ready for the beds late in May or early in June, and given good soil and ample room they will commence flowering early in August.

Bedding Violas.—If these were rooted thickly in frames or hand-lights last autumn they ought to be at once temporarily bedded out in good soil, not coddling them in any way. Strong stocky plants ought to be planted in rich soil not later than the middle of May, and if still earlier so much the better.

THE BEE-KEEPER.

APIARIAN NOTES.

FUTURE PREPARATIONS.

WE have not as yet passed through the most rigorous and varied winter ever experienced. The days are still raw and cold, without sunshine, and snow falls and lies deep a few miles distant from us. Flowers come slowly, and bees cannot venture to work on those in bloom.

The present is a critical time for bees and bee-keepers. The season is late; hives are of all grades, some well stocked with bees and well provisioned, others with ample bees and little food. How to bring these hives to a profitable state should be the aim of every bee-keeper. There is something wrong if any hive is not in a normal state of breeding at this date. When all are healthy and in a proper state it is surprising how little difference there is at the commencement of the honey flow between weak and strong hives.

Weak hives and those lacking food may be incited to breed by being properly covered, judiciously fed, and supplied with pea-meal mixed with honey placed in a scoop on the floor of the hive under the combs. These tend to keep the bees more at home, when otherwise many would be lost through flying in chilly weather. Well provisioned, strong stocks are always worse for artificial aid.

When there are one or more weaklings which lack vigour, and do not come up to a paying strength at the proper time, we take the first opportunity of joining the bees and brood to a stock which swarmed after all queen cells have been destroyed, thereby insuring in eight or ten days a strong stock, which may be supered, or if preferred allowed to swarm.

So far as profit and profitable hives are concerned, it will be understood the management must be with full sized hives. One of the most important factors for bee-keepers to know at a glance, when the bees are working, the strength of the hive, whether full or otherwise, and so long as bee-keepers remain ignorant of these things they cannot reap the full benefit from their bees. Make it an axiom in the apiary that queens deposit 4000 eggs daily, consequently hives ought to be large enough to contain these and the winged bees.—A LANARKSHIRE BEE-KEEPER.

STRAW SKEPS VERSUS FRAME HIVES.

THE past winter has given bee-keepers a good opportunity of proving which are the best hives for wintering purposes. Those who keep bees in straw skeps alongside of the more modern moveable frame hives can now compare notes, and prove without a doubt whether any improvement has really been made from a wintering point of view.

When compared with the old-fashioned straw skep, which so many cottagers still cling to, a practical test of this sort is worth a great amount of theory. When one hears of an apiary in which 50 per cent. of the bees are dead, presumably in wooden hives, the cause of which is supposed to be owing to the use of solid floor

boards, one is forced to the conclusion that the cause must be looked for from some other source.

Another bee-keeper writes regretting the loss of nine stocks, eight of these being destroyed by mice. This is very annoying to an enthusiast who must necessarily reside in the town, and whose apiary is in an outlying country district some distance from any dwelling. Had the precaution of reducing the entrance to all the hives by the aid of a piece of zinc, only allowing space for the bees to pass, and if the floor-boards were loose and not ventilated, by slightly plugging up the hive ample ventilation would have been provided, and the stock would in all probability have wintered without any mishap. It is from such failures as these that one may often learn a useful lesson, and guard against similar mishaps in the future.

During the past winter I have experimented with some bees in straw skeps that were not fed last autumn. No. 1 was a first swarm, which collected ample stores, and is still a good weight and very strong in bees. No. 2 was a cast which did not fill the hive more than three parts full of comb, and was short of stores in the autumn. No. 3 was a late cast, and owing to the wet weather, although they were put into a small straw skep, did not half fill it with comb, there being but very little honey. The bees, comb, and honey would not weigh more than 4 lbs., but by judicious feeding these stocks are all alive and doing well, with the prospect of each throwing off a swarm in time to obtain full benefit from the White Clover should the weather be favourable.

Although my stocks in frame hives have without exception wintered well, I am convinced there is no hive equal to the straw skep for wintering weak stocks of bees, but I do not recommend them for any other purpose, as so much larger yields of honey can be obtained by using frame hives.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

W. Clibran & Son, Oldfield Nurseries, Altrincham.—*General Plant List.*

E. H. Krelage & Son, Haarlem, Holland.—*Spring Catalogue.*

Charles Turner, Royal Nurseries, Slough.—*Spring Catalogue.*



TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Diseased Tomatoes (Challenger).—If you send a dying plant as soon after you read these lines as possible it shall be carefully examined. A mixture comprising equal parts of peat loam and leaf soil with a little sand will be suitable for the young Ferns. In the absence of peat use more leaf mould.

White Flowers (Kittie).—A reply to your letter was published on page 263, March 21st. The letter arrived one post too late for being answered sooner, but we suspect you will have to purchase some flowers for attaining the particular object you have in view in the most satisfactory manner.

Bunches of Grapes Defective (A. B.).—There is nothing parasitic on the bunches, nor have they been eaten by anything. They are what is termed "deaf," which is due to imperfect development, and usually accompanies unripe wood, yet imperfect bud formation also occurs on Vines with hard and brown wood. From your description we should attribute the defective bunches to immature wood, and, of course, the only remedy is to take care to ripen it in the current year, so as to have a different result another season. This may be done by keeping the growths rather thin, allowing the principal foliage plenty of space, nothing interfering with the free access of light and air, and keeping the laterals somewhat closely pinched (but not so as to start the basal or pruning buds), which will concentrate the elaborated matter on the buds, and with these well plumped and the wood thoroughly ripened good results would follow.

Raising Fruit Stocks from Cuttings (K. J. B.).—We consider this an undesirable and unnecessary mode of propagation, as Crab stocks are easily raised from pips or seeds, and Paradise stocks are obtained in half the time and much better by layering than from cuttings, which do not root very freely without a heel. They will root in the open ground, but will do so more certainly under a hand-light.

Weeds in a Lawn (Worried Gardener).—The weeds sent are not grown annually from seeds blown from adjacent land, but are perennials firmly established, and if they flower scatter their own seeds. The whole should be forked up when the ground and weather are favourable for the removal of every particle of rubbish, which must be burned. The site should then be drained if needed, the surface soil enriched with a compost containing lime and wood ashes or a mixture of bonemeal and kainit made firm, rolled level, then scratched with a rake for forming a suitable tilth for a mixture of lawn seeds, which can be obtained in the right quantity and kinds on your describing the extent of the space to be sown and the nature of the soil to a seedsman or firm. By sowing in genial weather in April a full and close lawn may be had in six weeks. This is the cheapest and best way of forming lawns of a satisfactory character.

Violets (H. M.).—It is quite true that Violets like pure air and an open position in order that they may produce stout foliage, not large thin-textured leaves to fall a prey to their natural enemy, red spider. They are not good town plants, and do not usually succeed near hot sunny walls in the country. If you have sound loam and an open position, not dry gravelly soil, you might try what can be done in your locality. With good cultural attention we do not see that you should fail. If you cannot grow the plants outdoors in the summer, you cannot have the coveted blooms from frames in winter, unless, indeed, you purchase fine plants in September which have been grown outdoors by someone else, and this for your purpose might not answer. They cannot have too open a site, but the soil must not be dry, and the present month is a good time for planting. See notes by Mr. E. Molyneux (on page 289), who grows Violets abundantly with the greatest ease. He transfers the plants to frames in September. If you have fair success in the first attempt you may expect better results a second season, as there is always something to learn from experience.

Pelargoniums from Eyes (Yorkshire Bite).—Undoubtedly these plants can be raised from eyes. Take the cuttings from the plant, cut transversely below the lowest leaf, and then, placing the knife about half an inch above the eye, cut the stalk in a sloping direction towards the base of the shoot. The large leaves only are available for forming leaf cuttings. The extremities of the shoots should be inserted, like ordinary cuttings, with one joint in the soil, and the growing point above. The cuttings being made as described, drain the cutting pots effectually, and fill them to within half an inch of the rim with sandy loam, leaf mould, and silver sand in equal parts. A little silver sand is then placed in the pot, a quarter of an inch or so, and the cuttings inserted about half an inch deep, each leaf being tied to a small stick, with matting round the footstalk, to maintain it in an erect position. A slight watering is then given, and the pots plunged in a bottom heat of 75°, a top heat of 60° or 70° being afforded. The frame having a moist atmosphere, there is little necessity to water; none should be given so long as the soil remains moist, and the less water needed the better, as the great evil is the liability of the footstalk of the leaf to decay, and the consequent destruction of the eye before a callus is formed. Shade is given for a few days, until the leaves are able to bear the sun; and in this position they remain until the shoot from the eye appears, when they are gradually hardened, and finally potted singly in small pots.

Cucumber Plants and Eelworm—Corrosive Sublimate (T. W.).—1, Corrosive sublimate solution is so dangerous a poison that we only recommend it as a drastic measure, but there are few substances that will destroy eelworm without prejudicing the well doing of the plants. We have given much attention to the subject, and find that though corrosive sublimate destroys the pests, being a thorough soil disinfectant, it has not the beneficial effect of gas liquor, soluble phenyle, sulphate of iron, and kainit. These act as manures as well as destroy eelworm, hence their use is preferable to such as have a more or less ultimate injurious effect upon the soil, and are dangerous to animal life, though we are bound at times to have recourse to such drastic measures, as special cases must have particular treatment. 2, As you have used corrosive sublimate solution, 1 oz. to 15 gallons of water, for Tomatoes without any deleterious effects, you may now treat the plants as you propose, giving them an ordinary watering with the solution whilst the soil is moderately moist, and in sufficient quantity to reach uniformly down to the drainage. For Cucumbers the solution should only be used at half strength (1 oz. to 30 gallons of water), as the roots are more tender than those of Tomatoes, indeed Tomatoes will stand a maximum dose. 3, Beyond the objection to the poisonous nature of corrosive sublimate, there is little to anticipate in the way of harm, as such an infinitesimal dose is not likely to enter into the composition of the fruit to an unsafe extent, but its negligent or excessive use may be attended with serious consequences both in the plant and soil. But the watering will soon wash any small quantities (such as those advised) away or beyond the reach of plants, and only extravagant use is likely to poison the soil. 4, Corrosive sublimate solution in the proportions we have advised will not nullify the beneficent action of gas liquor or soluble phenyle, as there are no bases in either with which the mercury is likely to combine. We particularly ask you to be very careful with the corrosive sublimate, using no more, and that under strict supervision, than is absolutely necessary for effecting the object in view.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (E. H.).—The flowers sent are all varieties of *Dendrobium nobile*, of which there are dozens of unnamed forms, and yours are included amongst those. (J. H.).—The specimen is a *Cœlogyne*, but it is obviously impossible for us to give the specific name. Send a bloom when you have one. (H. F.).—1, *Dendrobium fimbriatum oculatum*; 2, *D. primulinum*.

COVENT GARDEN MARKET.—APRIL 3RD.

TRADE and prices remain substantially the same as before.

FRUIT.							
	s.	d.	s. d.		s.	d.	s. d.
Apples, per half sieve ..	1	6	to 4 6	Grapes, per lb. ..	1	6	to 3 6
„ Nova Scotia, per barrel ..	10	0	21 0	Lemons, case ..	10	0	15 0
Cobs per 100 lbs. ..	20	0	21 0	St. Michael Pines, each ..	2	0	6 0
				Strawberries, per lb. ..	4	0	10 0

VEGETABLES.							
	s.	d.	s. d.		s.	d.	s. d.
Beans, Kidney, per lb. ..	1	6	to 2 0	Mustard and Oress, punnet	0	2	to 0 0
Bect, Red, dozen ..	1	0	0 0	Onions, bushel ..	3	6	4 0
Carrots, bunch ..	0	3	0 4	Parsley, dozen bunches ..	2	0	3 0
Cauliflowers, dozen ..	3	0	6 0	Parsnips, dozen ..	1	0	0 6
Celery, bundle ..	1	0	1 3	Potatoes, per cwt. ..	2	0	4 0
Coleworts, dozen bunches	2	0	4 0	Salsafy, bundle ..	1	0	1 5
Cucumbers, dozen ..	2	0	5 0	Seakale, per basket ..	1	6	2 3
Endive, dozen ..	1	3	1 6	Scorzoneria, bundle ..	1	0	0 0
Herbs, bunch ..	0	3	0 0	Shallots, per lb. ..	0	3	0 0
Leeks, bunch ..	0	2	0 0	Spinach, bushel ..	0	0	0 0
Lettuce, dozen ..	0	9	1 0	Tomatoes, per lb. ..	0	2	0 6
Mushrooms, punnet ..	0	9	1 0	Turnips, bunch ..	0	3	0 4

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s. d.		s.	d.	s. d.
Arum Lilies, 12 blooms ..	2	6	to 3 0	Roses (indoor), dozen ..	0	6	to 1 0
Azalea, dozen sprays ..	0	6	1 0	„ Tea, white, dozen ..	1	6	2 6
Asparagus Fern, per bunch	2	0	3 0	„ Yellow, dozen ..	2	0	3 0
Bouvardias, bunch ..	0	6	1 0	„ Safrano (English), dozen ..	2	0	3 0
Carnations, 12 blooms ..	2	0	3 0	„ (French), yellow, doz. blooms ..	1	6	2 0
Daffodils, (dbl.), doz. bchs.	3	6	6 0	„ (French), Red, dozen blooms ..	2	0	2 6
„ (single), doz. bchs.	4	0	6 0	Smilax, per bunch ..	4	0	6 0
Eucharis, dozen ..	4	0	6 0	Tuberose, 12 blooms ..	0	4	0 6
Gardenias, dozen ..	4	0	6 0	Violets (English), dozen bunches ..	1	6	2 6
Geranium, scarlet, oz. bunches ..	6	0	8 0	Violets (French), Parme, per bunch ..	3	0	4 0
Lilac (French) per bunch	5	0	6 0	Violets (French), Czar, per bunch ..	2	0	4 0
Lilium longiflorum, dozen	4	0	6 0	Violets (French), Victoria, dozen bunches ..	2	6	4 0
Marguerites, 12 bunches ..	1	6	3 0				
Maidenhair Fern, dozen bunches ..	4	0	6 0				
Orchids, dozen blooms ..	1	6	12 0				
Pelargoniums, 12 bunches	6	0	9 0				
Primula (double), dozen sprays ..	0	6	1 0				

PLANTS IN POTS.

	s.	d.	s. d.		s.	d.	s. d.
Arbor Vitæ (golden) dozen	6	0	to 12 0	Ferns (small) per hundred	4	0	to 6 0
Aspidistra, dozen ..	18	0	36 0	Ficus elastica, each ..	1	0	7 0
Aspidistra, specimen plant	5	0	10 6	Foliage plants, var., each	2	0	10 0
Azaleas, each ..	3	6	4 0	Genistas, per dozen ..	9	0	12 0
Cinerarias, per doz. ..	9	0	12 0	Hyacinths, dozen ..	9	0	12 0
Cyclamen, dozen ..	9	0	12 0	Lycopodiums, dozen ..	3	0	4 0
Dracæna, various, dozen ..	12	0	30 0	Marguerite Daisy, dozen ..	9	0	12 0
Dracæna viridis, dozen ..	9	0	18 0	Myrtles, dozen ..	6	0	9 0
Erica, various, dozen ..	9	0	18 0	Palms, in var., each ..	1	0	15 0
Euonymus, var., dozen ..	6	0	18 0	„ (specimens) ..	21	0	63 0
Evergreens, in var., dozen	6	0	24 0	Primulas, dozen ..	4	0	6 0
Ferns, in variety, dozen ..	4	0	18 0				



STRUGGLING FARMERS.

BURDENS on the land are in no instance so unjust, so oppressive as preferential railway rates. They are an anomaly so unfair, so absolutely dishonest, so opposed to fair dealing, and the common sense of right and justice, that prominence should be given to every fresh instance of them. In his remarkable lecture at Glasgow, to which we called attention last week, Mr. Allan C. Young mentioned the fact of hay now being brought from Africa to London as cheaply as within a radius of thirty miles of the metropolis. This is part of the foreign hay trade to which the great drought of 1893 gave such an impetus. Bales of Timothy hay from Canada were already

on the market, and as the drought grew in intensity the demand for any fodder went on increasing daily. It was a splendid chance for the British farmer, which, alas! very few were able to take advantage of. The lecturer told how large orders were placed in the north, and how a few farmers in the south having hay reaped a little fortune out of it, one farmer in Hertfordshire receiving £6000 and another £4000 for hay alone.

In the winter of that year thousands of cattle were kept alive on a diet of Oat straw and a few roots, many of them having nothing but the straw. The lesson was a severe one, which ought to have had tangible results in efforts for the improvement of pasture. So far as we can see it did nothing of the sort. Pasture is as much neglected as it ever was; there is no systematic culture of it. There is nothing like sustained fertility in ordinary pasture. During the winter it is brown and bare as it ever was; in the spring it is late in growth, that part of it which is reserved for hay may have a slight dressing of so-called manure, which usually is just so much decaying humus containing very little fertilising matter that is available by the growing crop, with the inevitable result that anything like an approach to a fair crop of hay is dependent on rainfall. At the best the hay a short crop—often taken so late that there is no useful aftermath.

It is so difficult to convince even dairy farmers of the certain profit of pasture cultivation—of the advantage to them in so many ways of an annual dressing of manure worthy of the name. Yet it is well known in actual practice that by an annual expenditure of about £1 per acre on pure chemical manure, applied to pasture by the end of February, we are certain of—first of all sustained fertility, next an early growth of herbage, next a hay crop saved by or soon after midsummer, followed by an aftermath of almost equal abundance, and pasture green and fresh-looking all the winter. At the least 2 tons of hay per acre may be taken as the mean crop on land so cared for, as compared with a ton, or often considerably less, on starved land. Then, too, there is the difference between an early crop and an aftermath, and a late crop and only late autumnal growth; between June hay and September hay; between cheap hay of high quality, and dear hay of low quality. The best hay always being the less costly, from being made with such ease and dispatch; the inferior hay, from being exposed to rain from being thrown into haycocks and repeatedly shaken out, being really very expensive. Well did Mr. Young say that the farmer of the present day is chiefly to be found fault with for his want of adaptability to circumstances, and for a narrow-minded prejudice about departing from old customs and embarking on new ones. Such grave accusations from a practical man cannot be ignored. They were not made lightly, and certainly were intended for the benefit of thoughtful earnest men, who, however laden with difficulties, are manfully struggling to adapt their practice to circumstances, and to effect such changes as bid fair to lead to improvement and profit.

Well also did he say that a most serious difficulty—a real hindrance to prosperity, or such changes as might lead to it among very many farmers—is a want of capital. He is undoubtedly correct in this, and we are convinced that now in Lady Day hirings, and again at Michaelmas, every farmer will do well to keep well within the scope of his means. We have always thought so, and have repeatedly proved the truth of this truism. We have no sympathy with the vanity which makes a man "acre proud," and which leads him on to hire more land than he can handle to the mutual advantage of himself and his landlord.

WORK ON THE HOME FARM.

Of the ordinary spring-sown crops, Barley, Oats, spring Tares, Cabbage and Kale, have all been got in well, in a seed-bed of super-excellence, so fine, so deep, so easily worked, as to be entirely satis-

factory. The planting of field Potatoes is in hand, and it goes somewhat more slowly than most other spring work, from the care we insist on in the handling of the seed. We proved to our satisfaction and profit long ago that the storage of the seed in single layers during winter was right, that late rather than early planting, with one or two well-developed shoots on the seed was right, and that a dressing of chemical manure in the furrows was right, more especially for the main crop, with the rows 3 feet apart.

Other root crops claiming attention now are Carrots and Mangolds. Only an acre or two of Carrots are sown at the home farm to have a supply for horses and cows. This crop is too expensive in the labour it involves to extend beyond narrow limits; Mangold, on the other hand, is easier to cultivate, and decidedly more profitable for farm live stock. We sow the entire crop of it in April, and find such early sowing tends very much to insure a full plant and early maturity, so that the crop can be got off the land in the autumn before there is much heavy rain, while carting is light and easy, and there is no risk of damage to the roots from frost. We know full well that in the eyes of many farmers these are trifling considerations, but we like to avoid the very considerable risk of hindrance from heavy rain, and a compulsory exposure of part or all of the crop to severe frost.

On an estate recently purchased we intend breaking up 20 or 30 acres of very poor and foul pasture with a steam cultivator, and after a summer fallow to plant it with Larch and other timber in the autumn. The Larch will be small, healthy plants, to go 3 feet apart, so that in due course the plantation thinnings may come in for estate repairs—rails, posts, gate and hurdle wood. We at first thought of a crop of Mangolds sown wide apart to clean the land, but it is so foul that we have decided for the bare fallow.

OUR LETTER BOX.

Dairy Work (N. C.).—"Butter and Cheese Making," an elementary course of instruction for technical classes, by John Oliver (late Principal of the Western Dairy Institute) and Margaret Barron (late teacher and lecturer of the Derby County Council), with numerous illustrations, price 1s. London: Bemrose & Sons, 23, Old Bailey. This is a practical manual, which may help you, as there can be no reason why you should not apply its teaching to the manipulation of the cream of your two cows. The general principles apply to all dairies, large and small. We will gladly assist you in any special difficulties if you will communicate them to us.

Smoking Bacon (Porcine).—A smoking room for this purpose is a very simple affair. For many years we had the annual supply of bacon and hams for a large establishment smoked in two large chimneys of an old farmhouse on the home farm of an estate under our care. Care was taken to send no resinous wood to the farm for the fires—only Oak and Beech logs being used. Both bacon and hams were in pickle a month, and in smoke a month, and we always had satisfactory results, both bacon and hams being excellent, and keeping well suspended from the beams of the old parlour which we turned into a bacon room. This information should serve you as a safe point of departure in the construction and management of your bacon smoking room. A plain, rather lofty, apartment of brickwork, rafters, or beams, with hooks for suspending the bacon; a slow fire of logs, or preferably of the sawdust of odourless timber; a small vent controlled by a damper for chimney, and careful attention to maintain a slow smouldering fire.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1895.		Barometer at 39° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
March.			Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday	.. 24	29.360	50.9	49.7	S.W.	43.9	53.2	49.7	90.1	46.0	—
Monday	.. 25	29.369	45.0	41.9	S.W.	43.1	54.1	39.1	98.0	32.9	0.010
Tuesday	.. 26	29.145	46.2	44.2	W.	42.9	53.9	38.9	94.9	34.2	0.380
Wednesday	.. 27	29.184	39.8	39.2	E.	42.8	53.9	38.0	72.8	33.9	0.142
Thursday	.. 28	28.912	46.1	41.3	S.W.	43.0	48.9	40.2	80.6	33.8	0.071
Friday	.. 29	29.072	39.9	38.6	S.W.	42.2	48.9	38.8	91.1	36.2	0.092
Saturday	.. 30	29.359	41.2	33.0	S.W.	41.7	48.6	35.1	86.0	31.2	0.140
		29.200	44.2	41.8		42.8	52.4	40.0	87.6	36.2	0.835

REMARKS.

- 24th.—Dull, drizzly, and showery nearly all morning; frequent sun in afternoon. Strong gale all day.
 25th.—Alternate sunshine and cloud, with very slight showers at 2 P.M., and in evening.
 26th.—Overcast till 11 A.M., frequent sunshine after; spots of rain at 3.15 P.M.; fine evening and night.
 27th.—Heavy rain from 4 A.M. to 8 A.M., frequent drizzle and showers in day, rain again in evening; a gleam of sun at 2.15 P.M.
 28th.—Gale all day, with occasional showers and frequent sunshine; fine night.
 29th.—Dull and damp morning; occasional showers in afternoon, and heavy rain and hail at 2 P.M., gleams of sun after.
 30th.—Sunshine early; overcast from 8.30 to 10 A.M., drizzle and showers till noon sunshine and showers in afternoon, and heavy rain at 6.30 P.M.
 A showery week of about the average temperature.—G. J. SYMONS.

Dobbie's Violas

2/6 PER DOZEN FLORISTS TO THE QUEEN ROTHESAY.

Our Violas are unsurpassed. Satisfaction to everyone guaranteed. One dozen, as follows, 2s. 6d., post free; 100 in fifty varieties, 20s.; exceptional value:—A. Grant, Bullion, Blue Cloud, Countess of Hopetoun, Duchess of Sutherland, Colleen Bawn, Dorothy Tennant, Picotee, J. B. Riding, Lord Elcho, Violetta, Duchess of Fife, York and Lancaster.

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3/6 PER DOZEN FLORISTS TO THE QUEEN ROTHESAY.

This is a sample dozen of the grand named Pansies which we send for 3s. 6d., carriage free, 25s. per 100:—Mrs. Mark, Tom Travis, A. Mabel, D. Rennie, Lord Hamilton, George Anderson, Betsy Kelly, Ellen Patterson, D. Morrison, Dr. Bostock, Crimson King, A. Ollar, Lord Rosebery.

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Everyone can grow and everyone can enjoy Phloxes. The following dozen, 3s. 6d., post free; 100 for 21s.:—Borsig, Christina Stuart, Chanzy, Comedie, D. Syme, Evening Star, Jas. McBride, Jas. Benuett, John Forbes, Mad. Prail, Oracle, Venus.

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We offer the following splendid selection of Dahlias, carriage paid, for 5s. per dozen; the four dozen, carriage paid, for 18s.

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Canary Bird, Colonist, James Cocker, John Walker, Mrs. Gladstone, Mrs. Langtry, Miss Cannell, W. H. Williams, Dandy, Matthew Campbell, Prince Henry, Rev. J. B. M. Camm.

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Apollo (1893), Bertha Mawley (1893), Cannell's Favourite, Countess of Gosford (1893), Countess of Radnor (1893), Delicata, Beauty of Eynsford, Kynrith, Robert Cannell, St. Catherine, Snowflake, Baron Schroeder.

POMPONE.

Admiration, E. F. Junker, Bacchus (1893), Crimson Beauty, George Brinckmann, Grace Lilian, Little Frank (1893), Revenge (1893), Ringdove (1893), Phebe, Hector.

SINGLES.

Willie Fyfe (1893), Amos Perry, Butterfly, Duke of York, James Cook, Kitty, Eclipse, Chilwell Beauty, Tennyson, White Queen, Marion, Mrs. Grant.

New Single Cactus Dahlias.

The best of all for cut flowers. Our new set for 1895 containing six most beautiful novelties, a great improvement on our former introductions, carriage paid for 10s. 6d.

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We can still supply Dahlia Cuttings till the 15th April. Our selection 1s. 10d. per dozen, post free. All separately named and packed in wood boxes.

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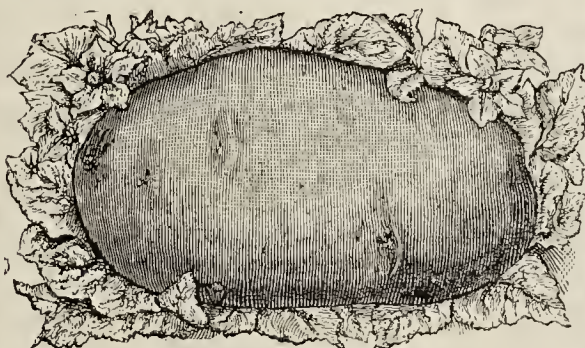
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Journal of Horticulture.

THURSDAY, APRIL 11, 1895.

EXPRESS GRAPE GROWING.

ON page 147, February 25th, 1892, we published an engraving, reduced from a photograph, of a house of Grapes representing what we thought a good crop obtained from Vines the second year after planting. The Vines comprised fourteen of Black Hamburg, three Gros Guillaume, and one Foster's Seedling. They were bearing up the entire length of one side of the roof of a span-roofed house and two-thirds down the side of the other. The eighteen Vines carried and finished well 400 bunches, or say an average of twenty-two bunches per Vine; the three largest of these bunches weighing 7 lbs. 4 ozs., 6 lbs. 3 ozs., and 5 lbs. 6 ozs. respectively. The Vines were raised, planted, and grown by Mr. Charles Colebrook, Royal Nurseries, Great Grimsby, Lincolnshire, and we entitled his accomplishment, "Quick Work in Grape Growing."

We thought then, and think now, that the terms of reference were merited, for the crop was photographed only three and a half years after the Vine eyes were inserted, and two and a half years after the yearling canes were planted. It is true that Mr. H. W. Ward, the accomplished gardener at Longford Castle, followed with an example of still quicker work—namely, Vines raised from eyes in 1881, and bearing a remarkable crop the following year (1882); one of them, a Gros Guillaume, bearing three bunches, excellent in shape, colour, and finish, weighing in the aggregate 30 lbs, other varieties being equally satisfactory according to their characteristics. This was quick work undoubtedly, and the term sometimes applied to the rapid production of Cucumbers would not have been inappropriate to the case, nor does it seem to be in the case we have now the pleasure to introduce of "Express" Grape growing.

This is another example of Mr. Colebrook's which is, we think, worthy of prominent attention. It shows the great productive capacity of the Grape Vine when accorded generous and appropriate treatment by the skilful cultivator. Moreover, the results achieved are somewhat in antagonism with certain preconceived notions on two points of practice—namely (1), shaking or washing all the soil from the roots when planting, and (2) employing "supernumerary" Vines for early fruiting in order that the "permanents"

may be closely shortened after the first season's growth, borne lightly the second season, and moderately the third year for laying the foundation of a strong constitution and long continued productiveness.

It must be understood that we have nothing to say against this practice, for as judiciously carried out it has given satisfaction in hundreds of gardens, and will probably do so again; but it is not the practice of many successful growers of Grapes for market, as they want the best returns in the least time for the outlay they invest in the work. From this point of view Mr. Colebrook appears to have good reason to be satisfied with the results he has achieved. In March, 1892, he planted a house with Gros Colman Vines, raised from eyes the preceding year (not cut-backs). In August, 1893, a photograph was taken of the vinery, and this is reproduced with absolute accuracy on page 315 of the present issue. The twenty-eight Vines produced and finished well 986 bunches, weighing in the aggregate 126½ lbs., the heaviest bunch 3 lbs 10 ozs. Such a crop as is represented in the illustration in nineteen months after planting the Vines is, so far as we remember, the best example of express Grape growing that has been brought to our notice, and we shall be glad to know if a greater yield has been obtained in less time.

Naturally our readers will desire to know something about the methods pursued in the production of the crop in question. On writing to Mr. Colebrook we found he had no secrets to suppress, but most readily told us the history of the Vines and the cultural routine he pursued. It is a simple narrative. There was no carting of old soil out and new turfy loam in to make a costly border. With the natural soil fish manure was incorporated freely (Grimsby is famous for fish), and oyster shells were also liberally used. The Vines, raised from eyes, as before mentioned, in 1891, were eventually transferred to and grown in 10-inch pots. The canes ripened and were cut back to about 6 feet at the end of the year. After starting into growth they were turned out of the pots, the loose soil removed, the outside roots liberated and planted with the balls of soil intact in February, the canes not further shortened. When the leader had grown about 6 feet it was topped. The leading growth resulting was allowed to extend, but all the laterals were pinched in the manner usually practised with Vines on the spur system. At the end of the season—December—the canes were shortened to one bud below where the leading growth was topped in the summer. The bearing canes were thus 11 feet long (the length of the roof) at the beginning of 1893, and produced the crop that was photographed in August of that year.

The question might be asked if the Vines were allowed to carry any fruit during the year they were planted. Three or four bunches were borne by each according to their weight and the strength of the canes, but on the strongest Vine six bunches were retained. This Vine, Mr. Colebrook says, "is the strongest in the house to-day. I have just counted the bunches now showing—sixty-six, and last year I cut 46½ lbs. of Grapes from this Vine." This is nearly 4½ lbs. to the lineal foot of rod, so the Vine was evidently not exhausted by its first year's crop.

Overcropping and exhaustion are, it should never be forgotten, relative terms. What may look like a much too heavy crop on some Vines may not be nearly so heavy to them as a crop only of half the weight is to others that are enfeebled by various causes, such as defective root action, a lack of appropriate food, impaired foliage—the result of crowding, scorching, or insect ravages; any, or all those contingencies render Vines unable to bear other than unsatisfactory crops of fruit, whereas when all their requirements are met in all those respects, they mature heavy crops without being materially distressed.

Mr. Colebrook's Vines planted in 1889 have not yet suffered by early and very free cropping. They have, he says, borne wonderful crops for four years, showing not the least signs of weakness, and their promise this year is as good as ever. "They afford," to quote his words, "plain proof that the old system of allowing four or five years to elapse before covering the roof with wood

capable of bearing fruit is not necessary." He is not alone in thinking that what are known as "permanent" Vines may be humoured to an unnecessary extent in resting, while "super-numeraries" are doing the useful work. There are gardeners, and of very high standing, too, who believe that when young Vines are strong enough for bearing it is wise to let them bear to what they deem a reasonable extent, and this is much greater than others admit to be safe. Bearing does them good, brings them into good habits early, is the view that is entertained, and, like Mr. Colebrook, they have something to show in support of their theory in the form of magnificent crops of Grapes that the ultra-cautious cultivator would almost shudder to see, in the full conviction that the Vines were being ruined. It is well that both sides of the question be considered, though it is not wise to be too slow in these keen competitive days.

Possibly some of our readers who are interested in modern Grape growing—perhaps even more "modern" than Mr. W. Taylor's routine—might, if convenient, find it worth while to pay Mr. Colebrook a visit in the summer and see his work. According to an illustrated account of Grimsby and Cleethorpes his offices are in the Old Market Place, and the nurseries are only a mile distant. They are said to have been started in a ploughed field in 1878, and are now of considerable dimensions, their founder rejoicing in the patronage of Royalty. He evidently does not let the grass grow under his feet, nor Vines "rest" long unproductive.

EMPLOYERS AND GARDENERS.

In dealing with what, from a gardener's point of view, may be rather a delicate subject, I wish it to be clearly understood that my object is not to cause any bitterness of feeling between the two classes, but rather to try and point out some of the disadvantages felt at times by both in their relations with each other, with the hope that perhaps a few stray shots may hit the mark.

Gardeners, of course, are like all other mortals, and subject to the same faults and failings as the rest of mankind. Gardeners need to have, perhaps as much as any class, an even temper and good control over themselves, for as well as finding it a somewhat difficult task at times to suit our human rulers, even the very elements are often at war with us, and seem bent on destroying us in some way or other. A gardener should also possess the art of making himself agreeable in conversation, for remember our employers, especially if they should be enthusiasts, really look forward, I have no doubt after a hard day's business, with pleasure to their quiet walk through their garden and a chat with the gardener, so the more bright and intelligent he makes himself the more likely is his employer to enjoy his company.

I am afraid gardeners sometimes, in their anxiety to secure a situation, are not quite so particular as they ought to be in getting a thorough understanding at the commencement as to what is expected of them, and the means allowed for producing the same. Situations are now so difficult to obtain that there is no doubt every excuse for them; still, in their own interest, and also the interest of the employer, it is best, as things which may appear trifling, and which, if the place can only be secured, may be left to right themselves, are, after all, very often the first that cause trouble. The employer sees fit to complain, the gardener makes excuses—not enough help, houses no good, and others. The answer is this: "You saw the place before engaging, and if you had taken the trouble might have found out all these other things, so there is no excuse;" whereas if a proper understanding had been arrived at to commence with, the gardener would have been able to say, "Sir, you have broken the contract, and can hardly blame me for the result." Some gardeners on taking charge of a garden are apt to look on their predecessor and all his works as wrong; the object of the new man becomes, so to speak, a task of pulling to pieces anything and everything.

I think I am right in assuming that this is so to a great extent, for I remember one of our illustrated papers some years ago making the matter a subject for their cartoon. The new gardener was depicted in a garden, up to his waist in weeds and rubbish, coat and waistcoat off, braces down, striving with might and main to restore things to something like order. Over the fence—spick, span, and smart—stood the late gardener. "Morning, W.; seem busy this morning." "Busy, ay! and likely to be, B.; you left the place in such a precious mess." We gardeners have, to a certain extent perhaps, deserved this, but it would be much better

if we left alone what cannot be helped. The place may be in a precious mess; and if so, it is our duty to get it out as quickly as possible, and not find fault with what has very likely been an advantage to ourselves. No doubt as time goes on, when we know more of the difficulties to contend with, we shall have a better opinion of our predecessor.

An employer has a right to a just return for the money he pays in wages, and so long as that wage is what the gardener has contracted for, be it little or much, he should devote the best of his energies and abilities to do what is required of him. Perhaps at times we lay too much stress on these words—what is required of us. It is only a very poor conception of a duty, if a man only does just what he is obliged. Perhaps many men have little encouragement to do more. To such I would say, Do not forget the advantage to your own mind, in feeling that you have honestly done your part; for though you may see no present benefit, rest assured it will come sooner or later. It is an old saying, and deserves more attention than it receives—if a thing is worth doing at all, it is worth doing well. We may become dissatisfied with our present position, and fancy ourselves fit for something better; but while waiting for opportunities, or seeking them, we should do our utmost to what we are about, as the surest way to gain a better position is to do thoroughly well, be it in ever so humble a way.

Employers are not in the habit of maintaining gardens for gardeners, but gardeners for gardens. In neglecting to observe this, I fear we very often make a rod for our own backs. Gardeners, of course, like other people have hobbies, and will, if chance permit, ride them, and if allowed to do so all well and good, but those places are few and far between. We again, like other mortals, are not easily weaned from our hobbies; but depend on it, like other riders, if we persist in riding, one day we shall be thrown. The best way, then, to avoid it is to subordinate our tastes to the employer, who has to pay the piper, and should have his Gooseberry trees planted whichever way up he likes best.

To be successful in satisfying the wants of our employer, it is well to bear in mind there is no royal road to success. Close attention to small matters go a long way further than, shall I say, scientific knowledge. How often do we see the most perfect results where the appliances are very poor? For the knowledge that we are deficient in some part of our armour makes us doubly anxious; we are continually on the watch, and often success crowns our efforts through the very point we anticipated the most danger. I do not mean to imply by this that it is not best to be properly equipped in every way, for the man who has the best convenience, and gives the same attention, ought to beat his neighbour who has not these advantages; but it is not wise to place too much reliance on these things.

Perhaps it is scarcely necessary in these days to remind gardeners of the duty of being economical in the garden, for I take it there are very few gardens where the question of economy is left in the hands of the gardener. Time was, no doubt, when in some of our best places the gardener had almost a free hand. If there are any such now I know them not; yet it is the gardener's duty to his employer to use the means which he allows to their fullest capacity, and to make their gardens if possible a source both of pleasure and profit.

Just a word to head gardeners. Many a young man's future has been made or marred by the kind of man he has had the fortune or misfortune to serve under. I could quote many instances of this did time allow, but must content myself by remarking that a kind and encouraging word costs nothing, and I know from experience how gratifying it is to receive it. My experience also teaches me that kindness and encouraging words will always go a long way further than the opposite. There is, indeed, no comparison in the work done by a man who is in sympathy with his employer and the one who is otherwise.

To under gardeners I would say, Do not forget you are a plank of the ship, each one of you, and each one has a special duty to perform if the ship is to be kept floating. No doubt you at times sigh for the happy time when you will be a captain; but take my word for it, the lot of a head gardener is not in all cases a happy one. So do your level best to strengthen the hands of your chief to the best of your ability. He may seem at times irritable, unreasonable, and generally bad to do with. You see the effect, but very often have no idea of the cause.

I well recollect serving a good kind man close on three years as foreman, one of the happiest periods of my life. We had one little hitch during that time—a very simple thing, too, but I did not feel justified in giving way. A few sharp words, then for a day or two a sort of coolness. I was troubled, but not so much as he. I could stand it no longer. I apologised; and never shall I forget the change that passed over his kind and venerable face, as, with

tears glistening in his eyes, he clapped his hand on my shoulder and said, "Well done, my lad; I am not disappointed in you. I felt sure you would be brave enough to acknowledge yourself in fault." He is still living, and I am proud to say still honours me with his friendship; and I am not the only one by many of the young men who during his long career he has had to do with who look back to the happy time spent with him as a bright gleam of the past. This is how it should be, and how it will, if each study the interest and do their best for each other in every way. I must now pass on to the other part of my paper.—GEORGE WILSON, *Swanland Manor, Brough*.—(Read at the *Hessle Gardeners' Mutual Improvement Society*, March 12th).

(To be concluded.)



EULOPHIELLA ELIZABETHÆ.

Two plants of this handsome Orchid are now flowering at Kew. They were obtained in the autumn of 1893, when they were newly imported from Madagascar, and they have been growing ever since in teak baskets suspended over a hot-water tank in a tropical house; they are planted in pure sphagnum moss, and they have been liberally watered always. The stronger, writes "W." in the "Garden and Forest," has made leaves 3 feet long by 1½ inch broad, four to each growth, and one bears three, the other two spikes. These are horizontal, a foot to 18 inches in length, straight, dull brown-purple, with ovate-concave bracts. There are



FIG. 53.—ODONTOGLOSSUM TRIUMPHANS LIONEL CRAWSHAY.
(See page 322.)

sixteen flowers and buds on the strongest spike, and these are like the figure in the "Botanical Magazine," t. 7387, in size, form, and colour, except that they are not tinged with rose on the inside of the segments.

CATTLEYA PERCIVALIANA.

THE London correspondent of an American contemporary says that this beautiful and useful Orchid deserves to be more largely grown than it is. Several plants of it at Kew are in flower now, the flowers of medium size, elegant in form, and of the richest shades of maroon-purple and mauve. It was introduced in 1882 from South-west Venezuela, where it is said to "invariably grow on rocks, not on trees, and in full exposure to the sun, generally in the vicinity of river courses, which, in the rainy season, afford abundant moisture to the plant." Under cultivation it thrives

when planted in peat and sphagnum, either in a basket or on a raft. The preference for rocks is a peculiarity of another handsome winter-flowering Orchid—namely, *Epidendrum bicornutum*—which forms thick masses on exposed rocks near the sea in the island of Trinidad. It also thrives in peat and sphagnum in baskets, requiring excessive heat and moisture while making new growth.

REPOTTING ORCHIDS.

THIS is a work that requires a great amount of care and judgment, as future success depends to a great extent on the manner in which this important operation is carried out. There is such a wonderful variety in this family that no general lines can be laid down for compost, time, or manner of repotting. Take the larger fleshy roots of *Vanda* or *Saccolabium*, for instance, and compare them with the small interlacing or twining roots of many species of *Dendrobium* and *Oncidium*. To place these in similar composts, or in the same sized pots relatively, would be so obviously wrong that even a novice in Orchid-growing would hardly be guilty of it. On the other hand, many growers with a certain amount of experience will not give the consideration that is essential to the less varying types and their requirements.

Take the example of perhaps the two best known types of Orchids in existence as serving the purpose of illustration best—viz., *Odontoglossum crispum* and *Dendrobium nobile*. The former of these, as pointed out by Mr. Bardney in his very practical article on page 179, are shallow or surface rooters. These do not need a large pot or a great thickness of compost, for if provided the roots could never take to it, and the moisture-holding medium about the pseudo-bulbs will be a fruitful source of decay both summer and winter. *D. nobile*, on the contrary, seems to delight in pushing strong roots in all directions, which, if not checked or broken off, frequently grow to a length of a foot or 18 inches. This may be seen on any plant of this species growing in a warm, moist house that may happen to have young shoots at or near the top of the stems. Here, then, is a clear case for a larger, deeper pot in comparison with the size of the plant, and a compost consisting of large, rough lumps of charcoal or crocks mixed with the material used for its sustenance. The larger growing *Cattleyas*, and *Lælias* too, like this rough, open rooting medium, and although the majority of the roots are usually nearer the surface than is the case with the *Dendrobium* mentioned a fairly wide root run will be found to answer best for them.

Intermediate between the types of root mentioned are those that, being small, yet take a very firm hold and grow more or less closely matted. These would include the majority of the deciduous section of *Dendrobiums*, many *Oncidiums*, *Epidendrums*, and *Miltonias* that like a rather closer and firmer root run, and pots not much larger than is necessary to take the plants easily. Among the terrestrial species so called the same variations will be found, and the grower who pots a *Cypripedium* or *Cymbidium* on similar lines to a *Thunia* or *Calanthe* has yet something to learn of the details of Orchid culture. *Phalænopsis amabilis* and *Aërides odorata* both like sphagnum moss about their roots, yet who would think of treating them to it in similar bulk? The roots of the first named would be killed if buried at a depth at which the strong and vigorous roots of the *Aërides* will thrive.

The materials required for potting the various species has been so frequently alluded to in these pages that it is hardly necessary to repeat them here; but with regard to the manner of potting a few words may not be out of place. The distichous-leaved section are easily fixed in position, that is when the roots are abundant; more than ordinary care is, however, necessary to avoid snapping these, which cannot be bent very much any way. It is unwise to disturb these plants at all unless the temperature can be well kept up afterwards, it being far better to wait even until they are well on the move than to run the risk of checking them—a serious matter with these large fleshy roots. Should not these be abundant enough to fix the plants, a strong stake ought to be placed to each, or small plants may be firmly wired to rough blocks, and then inserted in the pots or baskets and surrounded with sphagnum. All the stem roots that can be brought down to the surface may be covered with moss, as this strengthens the plants and encourages the emission of more roots in the atmosphere.

The pseudo-bulbous division of epiphytal Orchids, as represented by *Oncidiums*, *Cattleyas*, and others, require considerable care in repotting. It may almost be taken as an axiom that the larger rooted the plant is, the larger pot or basket will be required, also the rougher the compost, and *vice versa*, the exception to this rule being noted from time to time in these pages. Those that are compact in growth, as *Oncidium tigrinum* and *Miltonia vexillaria*, are easily fixed in position by elevating the plants as required, and bedding the compost firmly around them, finishing by trimming off the ragged ends to a neat cone. With *Cattleyas*, *Oncidiums flexuosum* or *mercurianum*, and others that produce

leading growths at varying heights more judgment is required, and the plants must be manipulated so that as many of these as possible are brought into contact with the compost without burying the eyes.

The plants must be staked or tied into as neat a shape as possible, and the leads disposed as equally as may be, or a straggling ill-balanced specimen will result. *Cypripediums*, *Calanthes*, *Thunias*, and certain species of *Phaius*, *Peristeria*, and many other Orchids requiring loam in the compost, are the simplest of all with regard to repotting, and as the surface of the compost is usually kept rather below the rims of the pots no more difficulty will be experienced in fixing the plants in position than in the case with an ordinary greenhouse plant of any kind.

There are three cardinal rules to be observed in repotting Orchids of any description. 1, Provide drainage that cannot possibly become choked, but will always be free and open, so that when the water is given it permeates the whole compost, and quickly passes away. 2, Remove all decaying roots and sour portions of the compost that it is possible to get at without unduly disturbing the sound ones, and (3) fix the plants in position, so that they cannot possibly rock when moved about for cleaning or examination.—H. R. R.

PROFITABLE CUCUMBER CULTURE.

MANY private gardeners, myself included, when commencing Cucumber growing for market, as a rule soon find out they have much to learn. This experience has to be paid for. From six to a dozen plants grown with the aid of bottom heat, consisting not unfrequently of both hot-water pipes and hotbed material, may succeed for a time, and those responsible may have good reason to be proud of their achievements. When, however, it comes to growing plants by the hundred, and cropping heavily, the case is very different. Hotbeds from 100 to 200 feet in length on each side of a house or range of houses are simply out of the question, and some growers even dispense with bottom heat altogether, though not, I believe, before February or March, these being the months when most plants are put out. Cucumbers are not always successfully grown in private gardens. The plants may keep in a fairly healthy state, and produce enough fruit and to spare, but if much strain is put on them they collapse, while many of the Cucumbers are of poor form, and not good to eat. Market growers must have heavy crops in various stages of growth from the time their plants are large enough to bear till they are cleared out; added to this, the fruit must be of good form and colour, as it does not pay if "seconds" predominate. For the former 3s. per dozen can be obtained during the greater part of the season, but second rate fruits only fetch about 1s. 6d.

What is known as the extension system—three or four plants filling a moderately large house, is not favoured by market growers. They cannot afford to run the risk of having large blank spaces through a plant failing. A distance of about 2 feet apart is more than some allow, but it is doubtful if anything is gained by excessive crowding. Then, again, bottom heat pipes may be dispensed with, especially if the start is delayed till March and the natural soil is not of a heavy clayey nature. Where the latter prevails it pays to have a bottom heat pipe immediately under where the plants are to go, and to also form a chamber over the pipes with a view to distributing this bottom heat, and also to keeping the roots from reaching the clay. Failing to keep the roots out of a cold soil has been the cause of failure in more than one attempt to grow Cucumbers.

Not only do Cucumbers collapse completely on a very bright day when the roots are in a cold rooting medium, but the same thing occurs when they have either too much over-rich soil or have free access to a mass of decayed manure. The roots require ample air, heat, and moisture, and if we exclude any one of these failure soon results. A great heap or ridge of soil ought never to be seen in connection with Cucumber culture, and what is used should be constantly overrun by a complete network of roots. This necessarily means very close attention on the part of the grower, especially with regard to watering. A few hours' neglect may mean the loss of the greater portion of the leaves in a house. The whole of the plants may take water twice in one hot day, so rapid is the evaporation from the leaves. Less than a peck of soil suffices for each plant at the outset, and from one to two pecks may be given subsequently in the form of top-dressings. The soil must be of a loose porous nature, and composed of materials that will not sour readily. Seeing that liquid manure will of necessity be freely used, well-charred soil or charcoal and old lime rubbish should be mixed with loam devoid of fibre; but if good yellow fibrous loam can be had, chop that up roughly and only add horse droppings to the extent of one part in four. Market growers, if they have the opportunity, stack turf in the autumn grass side

downwards, and mix layers of good stable manure with this, chopping all down together as required. At Bromham in Wilts a light sandy loam with no fibre in it answers well for Cucumbers, and large quantities are sent from there to the markets.

After being planted in well-warmed soil from a week to a fortnight, according to the time of year, roots should begin to show, and when they fail to form fresh fibres on or near to the surface the plant's decadence will be rapid. In order to keep the roots active frequent top-dressings of fresh compost similar to that first used, with perhaps the addition of nitrate of soda or fish manure at the rate of a 6-inch potful of the former, and an 8-inch potful of the latter to a bushel of soil. A heavy dressing should never be given at one time, but only enough to just cover the roots. Then if the watering goes on before the old soil underneath becomes dangerously dry, the new soil does not sour, and the roots are soon in possession. Soot is sometimes given as a surfacing, but that is a mistake, as it serves to clog the soil. It might be mixed with the soil or used in water very frequently. Surfacings of fish manure, kiln dust, and other manures strong in ammonia are dangerous. After they have been damped, and the house is closed, too much ammonia is given off, and the foliage suffers badly. Nitrate of soda dissolved in water at the rate of 2 ozs. to 3 gallons of water is a safe and effective stimulant, and must be used frequently when the plants are bearing freely.

I have dwelt at length on the treatment of the roots, as it is in that direction most mistakes are made, and I will, therefore, only touch briefly on other details. Cucumbers for the market are principally grown in long, narrow, span-roofed houses, a width of 12 feet being generally the widest. The central path is sunk, and the plants are arranged along each side. A sufficiency of the side shoots are laid in on each side to just cover the trellis, and a leader is extended till the ridge is reached. The side growths or laterals are stopped at the second or third joint, and allowed to fruit to their full extent at once. This early and heavy cropping of young plants does not greatly check growth of haulm, always provided they are liberally treated at the roots, and laying-in and stopping goes on, the growths running into each other, though not to the extent of undue crowding. From first to last there must be no neglect of training and stopping, and no leaving the fruits hanging a day after they are large enough to cut. The plants, beds, and walls are freely syringed in the morning before the houses are very hot, and syringing takes place again on closing.

Only a very little air is given at the top or at the high end of houses on a slope, and the night temperatures are kept at about 70°, while a thin shading is desirable on clear hot days. Directly the plants give signs of having done their best, a fresh stock is prepared. They are then cut out, the soil is changed and replanting takes place, three sets of plants being sometimes put out in one house during a single season.—W. IGGULDEN.

OVERCROWDING PLANTS IN POTS.

I THINK there are but few, if any, gardeners who have not at various times during their career experienced uncomfortable feelings of regret when by the force of circumstances they have been compelled to arrange plants far too thinly for their well-being. Such times do occasionally occur when it is almost impossible to follow any other course, but in a great many instances I fancy the display of a little ingenuity might end in a vastly improved state of affairs.

During the winter months, when many plants are completely at rest and others are comparatively dormant, they may be placed somewhat closely together without any serious detriment to their future welfare; but as soon as signs of growth are apparent if this crowding system is still continued, disastrous results follow. Disastrous may seem a somewhat strong expression to use in this instance, seeing how seldom it is that plants are killed outright by overcrowding; but I maintain that it is nothing short of disastrous to see plants which ought to be sturdy and strong from the first rendered permanently weak and drawn by this too prevalent practice of overcrowding.

I fancy I can divine the thoughts which will pass in the minds of many when reading the foregoing sentence. They will be something like this: Yes, but what is one to do if one has so many plants to grow and only a limited amount of space to grow them in? My answer is, Consider seriously whether or not it would be to your advantage to "grow less in number so that each be greater in bulk." If we could all keep this axiom constantly in our minds I think we should invariably secure better results. If we take as an example bedding Pelargoniums; a given number conveys a very indefinite idea of the space they will cover during a certain time. One good plant will cover during the growing season as much space as

two weak ones, and provide a more satisfactory display into the bargain. Then again with plants for decorative purposes; how much easier is the task of forming groups and filling tins and jardinettes, when well developed plants in comparatively small pots are at command, than when weak and leggy ones, showing in different culture, have perforce to be employed.

At the present season of the year, when the majority of plants are making active growth, and when the pressure on space under glass is so great, it is especially necessary to bear in mind the evils of overcrowding, as thousands of plants, which in the spring time are in a young state, are annually spoilt, from a cultural point of view, through being placed closely together for a few weeks. Much can frequently be done to avoid these mistakes by constructing temporary frames, in which bedding plants can be placed till they are secure from frosts in the open air. This will allow a general thinning and re-arrangement of plants in houses and pits to be made, so that all may have room for abundance of air to circulate between them.

All good plant growers know and act on the important fact that in order to secure a sturdy habit of growth in plants of nearly all descriptions they must not only be arranged thinly enough for the foliage to stand clear of each other, but also sufficiently wide apart for the air to play freely around them after a considerable amount of growth has taken place. A point often lost sight of is that the wider the stage or bed on which plants are stood the more thinly should they be disposed, because the volume of light which reaches them on either side when placed on a narrow stage becomes less in proportion when wide breadths are arranged. This principle is easily demonstrated by plants on shelves, or isolated ones raised on inverted pots; in either instance more uniformity and sturdiness of growth is obtained.

A severe winter and so far uncertain spring has rendered overcrowding to a certain extent most difficult to avoid. Now, however, that a slight improvement in the weather seems slowly taking place, more than usual pains should be taken to rectify past errors and steer clear of committing them in the future.—D. W. C.

BORDER CARNATIONS.

THE winter just past has proved one of the worst in its effects for Carnations, the mild weather up to Christmas last year laying the foundation stone of the mischief. Many plants, indeed, were then growing, a condition most inimical to the well-being of Carnations, and when frost came the stems became softened and drooped.

While some varieties of French extraction have suffered, the greater number are in excellent health. These comprise English and German varieties, which, though less abundantly floriferous, are not so liable to damage. Examples of those that are perfectly firm and plump are Raby Castle, White Lady, Germania, Foxhall Beauty, Jessica, Midas, Mrs. Muir, and Alene Neumann. Last year layers rooted so slowly that not quite half the stock of flowering plants was put out in the open. Instead, they were planted in cold frames in a very sandy and light compost. No water has been given them, and on examination the plants are found to have made many roots, and all near the surface. It is now, of course, quite time that they should be planted, but the ground is not yet dry, and, indeed, nothing can be done in the garden. It is, on some accounts, preferable to bed out plants in soil in frames rather than to winter them in pots. For ease of transit, pot culture is, of course, the better, but when the plants are to be removed a few yards only, the system of dispensing with pots is, I am sure, preferable. Some that were not ready in the autumn I have lately potted, and it is impossible, from their appearance, to say which of the plants were potted now and which in autumn. There will, however, be a slight difference between the two sets in their time of flowering, the autumn plants being the earlier.

It must be pointed out with regard to spring planting that sparsely rooted plants inserted in September would succeed, while if set out now they will almost certainly fail. They may not even take a grip of the soil; but should they do so, the plants grow so weakly that they prove miserable failures. This, no doubt, is largely the reason not only for so many blanks, but also for the want of vigorous layers to carry forward the stock. Another cause of failure is to be found in the system of providing a too liberal treatment. The loss of plants from the attacks of eelworm is appalling, and this invariably follows what is called "high cultivation." If any manure is provided, it ought to be decayed, and only used lightly. However, it is better to plant in ground that has been enriched for a crop preceding Carnations than to apply it for these flowers directly. When planting I have some sandy compost mixed with the soil round each plant, and in the case of yellow and yellow ground varieties the whole surface of

the beds to a depth of 4 inches or so is mixed with sand and leaf soil. Indeed, whenever a variety is found to be "miffy" the same treatment may be given it with success. When Carnations in abundance and of good quality are required, it is necessary to feed, but this is best done by surface dressings. For this purpose soot is excellent, and is said to be also effective as a deterrent to eelworms. I also employ pigeons' manure and an occasional dressing of chemical manure.

It is well known that growers for exhibition thin out the buds to a limited number; but for ordinary cutting purposes, thinning is not much attempted. This, however, is a mistake; I thin not only the buds, but also the grass, and by these means I secure in the end not only as many flowers, but flowers of a superior quality. The way to thin is so simple that a very large number of plants may be done in an hour. The best stage is when the buds are quite small, as they may be drawn out more easily then. When the grass is thinned the result is a stronger growth in the case of those left, and consequently earlier and better layers. Seedlings have wintered without loss. These now require a dressing to strengthen them.—R. P. BROTHERSTON.

WATER GARDENING.

FEW, perhaps, are called on to embellish by water power their sphere of work, and fewer still to do so on the larger scale; yet many may add to the interest already provided by the introduction of suitable water plants. Nevertheless, a study of the characteristics of good examples of water-designing is worthy of regard. Should one have to perform only in a minor scale there is greater difficulty, if it be in imitating Nature, to avoid the puerile; and for the best effects a skilful hand may be required to create illusions for the eye—to complete in imagination what is curtailed by reality.

Safety lays in simplicity of design with distinctiveness of purpose. On the one hand we have, in the form of fountains and ornamental basins, the severely classical harmonising with the formal outlines of buildings on geometrical garden designs; on the other, the employment of Art to aid Nature in her freehand delineation. Admirable illustrations of either type are frequently to be met with, and occasionally some examples "whose incoherent style, like sick men's dreams, varies all shapes and mixes all extremes."

Amongst the tender aquatic plants *Ouvirandra fenestralis*, the Lattice Leaf of Madagascar, takes a prominent position, for apart from its unique character the successful cultivation of this somewhat "miffy" plant amounts to a triumph of skill. Probably the quality of the water contributes largely to results, for where confervoid growth attaches to the leaves it is inimical to health. Where this occurs sponging the leaves is sometimes resorted to, a remedy which in careless hands is as bad as the disease. Prevention by using suitable water is infinitely preferable to attempting a cure. The *Ouvirandra* is well worthy of a glass receptacle placed on the stage in a shady corner of the plant stove, thus displaying its beauty to advantage.

Amongst the lesser kinds suitable to a warm or temperate house are *Limncharis Humboldi*, *Pontedera crassipes* and other varieties, *Pistia stratiotes*, and the curious Clover-leaved *Marsilea*, the Nardoo plant of Australia; whilst the larger-growing *Nelumbium*, the sacred Lotus, with *Nymphæas Devonensis*, *cœrulea*, and *rubra*, are beautiful additions, if not precluded from want of space. One need not mention in the same list that imperial plant the *Victoria regia*, for unfortunately all but a privileged few must worship it afar off. Doubtless there are yet many interesting plants in the tropical waters of other lands waiting for the collector's hand to introduce them to our notice, as one feels that this section is at the present somewhat limited. Yet it is a question of demand, and the utilitarian question of space and other considerations of an aquatic house proper is prejudicial to their introduction.

Not so with the hardy aquatics, and in the open. Here the fair bosom of many an ornamental lake is waiting to be decked with the soft garniture of our charming Water Lilies. Obviously for this work we shall first consider the Lilies, for they are inimitable. If space is limited beware of that yellow-buttoned vagabond *Nuphar lutea*, which will insidiously swallow up the whole surface of the water to the detriment of appearance, and of his fair cousin *Nymphæa alba*. But few plants, aquatic or otherwise, can approach the common white Water Lily in gracefulness of foliage or beauty of flower, unless it is *M. Marlia's* beautiful hybrids. These when better known will take a high place, probably the highest in water gardening.

The pretty pink-bl. ssomed *Polygonum amphibium* is a plant to be introduced with caution, and should the pond or lake be a bathing

resort, it is in deep water a veritable death-trap should the swimmer get entangled in its wiry stems. It is also of a weedy, aggressive nature. In water not exceeding 2 feet in depth, the common Arum Lily, *Richardia æthiopica*, will succeed. This may not be generally known, but I have experience of some plants thus growing for ten years, and on some occasions being frozen in a solid block of ice without injury. A group by the lake side or "river's brim" should be tried, as even under pot culture its habit and form of foliage commend it to aquatic treatment.

For marginal planting we have many bright or interesting plants adapted for this position. Some are coarse and some are common, but if not overcrowded, and kept within reasonable bounds, what might be a drawback in the higher society of plant life is an advantage here. Overcrowding is, in all cases, to be avoided, but rigorously so in water gardening. Planting, here, is rather to serve as a garnish to the dish than to form the *pièce de resistance*.

Butomus umbellatus, the Flowering Rush, is pretty in its dull mauve umbels of blossom; *Equisetums fluviatilis* and *Drummondii*, the Horse-tails, are distinctive in character, and suitable where space permits, as the *Equisetums* have a trick of tunnelling and sending up their plumes in unexpected places. That ubiquitous plant, *Iris pseud-acorus*, is too well known to receive more than a passing glance, unless it is for the purpose of apologising by deputy for its commonness. Yet, scamp as it is, lounging in every ditch, pond, or watercourse, and existing on sufferance out of its element, it will if it meets with something stronger than water, in the way of sewage or decomposing matter, fairly revel in—it is to it—the good things of this life. A bundle of the rich green sword-blades 7 feet high is very attractive. Add to this the summer crop of canary yellow Orchid-like blossoms, it is needless to apologise further for it; beyond that, its powers of absorption in polluted water may possibly be of hygienic value.

In sheltered situations, and where privacy insures safety, *Aponogeton distachyon*, the Water Hawthorn, might occupy some pool, and various *Sarracenias* flourish in the sphagnum cushions of a streamlet.

The subject is one which in practice entails but little labour, affords much interest, and is one of those phases of work—if work it can be called—a little aside of the ordinary routine. The exercise is recreative, the influences are soothing; being such, they may be, though infinitesimal, a foretaste of the purer pleasures of "the still waters and green pastures" beyond.—E. K., *Dublin*.

VEGETABLES FOR EXHIBITION.

(Concluded from page 232.)

ONIONS.

ONIONS for exhibition require a long season of growth, and should be sown in boxes about the first week in February in a temperature of from 50° to 55°. When the seedlings have reached the height of 1½ inch they may be transplanted into other boxes 2 inches apart, and grown in the same temperature till they are about 6 inches high, when they should be hardened in cold frames ready for planting in the open about the middle of April. The ground should be thoroughly trenched in the autumn, and heavily manured, placing the manure at the bottom of the trench and between the top spits. In the early spring soot and salt should be sown over the ground to wash in by the rain. Then about a month before planting the ground must be forked over and a little more soot scattered over it. When ready for planting give a good dressing of wood ashes, then with a trowel transplant the Onions 10 inches apart and 18 inches from row to row. If the weather is dry much water will be required, and, as soon as they are thoroughly established, a little soot, nitrate of soda, or liquid manure not too strong should be given at intervals of ten days.

It is an excellent plan throughout May and June to syringe the plants with a solution of 3 ozs. of soft soap and a wineglassful of petroleum added to 3 gallons of water. This seems distasteful to the Onion fly, and prevents it from lighting on the blades and depositing its eggs. Top-dressing the ground with well-decayed manure is of much importance, and should always be done if the soil is light and likely to dry out in hot seasons. As regards varieties, the globe-shaped sorts seem to find most favour. *Ailsa Craig* and *Excelsior* are two of the best, while *Rousham Park Hero* and *Suttons' A1* are excellent flat varieties.

CELERY AND LEEKS.

The seed of Celery should be sown very thinly in boxes in heat about the first week in March. After the young plants are fit to handle they should be pricked off into a frame, which has been prepared by putting 3 inches of cow manure on a hard surface of ashes, then 2 inches of soil on the top. In this the young plants will grow freely, and lift with good balls with a trowel. It is most important that the young plants should not receive the slightest check by becoming dry at the root or by being crowded, or they are sure to throw up seed stems, which render all the care and cultivation useless. About the beginning of May the trenches should be prepared, 18 inches deep and 18 in width, and filled

with well decayed manure and part of the soil taken from the trench, bringing the whole level with the surface. The plants ought to be placed 1 foot apart, and thoroughly watered in.

When the plants are making free growth the ground should be mulched with long litter to prevent the moisture escaping. About once a week liquid manure should be given. About seven weeks before the show preparation should be made for blanching. After all useless leaves and side growths have been removed, take long strips of brown paper and bind this round the plant, not too tightly. This will be found an excellent substitute for soil, as no worm or slug marks will be found, and the blanching will be more effectually completed. It is a difficult matter to say which are the best varieties to grow, as I think with Celery it is more a question of good culture than variety. The varieties that I grow are Sutton's Solid White, Major Clarke's Red, and Sulham Prize Pink.

Leeks require much the same cultivation as Celery; the only difference is in the blanching. After they are planted in the trench paper collars should be put round the neck of each plant, to prevent the soil reaching the centre of the Leek when earthing up, also to help to keep the leaves in an erect position till once the blanching is completed. When the Leeks have started to grow freely, draw up these collars once a fortnight, at the same time adding more soil until the blanched parts are about 12 inches in length. They like abundance of liquid manure, and should never be dry at the root. Of varieties Sutton's Prizetaker and The Lyon are both popular.

CARROTS, PARSNIPS, AND BEET.

The system that I adopt to have these clean and straight and of good flavour is as follows:—In the early autumn the ground is thoroughly trenched to the depth of 3 feet, but no manure given. In the early spring the soil is forked over and rolled firm, then with a round iron bar holes are made about 3 feet deep and 6 inches wide at the top for Parsnips, and half that depth and width for Carrots and Beet. These holes are filled up with a mixture of burnt soil, wood ashes, and a little soot put through a fine sieve, with an addition for the Parsnip of a little decayed manure, and dropped into the bottom of the holes.

At the proper season for sowing four or five seeds are placed on the top of each hole, and the young plants are thinned to one when large enough to determine which is the best. By this method there are no stones or rough lumps to obstruct the tender point from going down straight, and no fresh manure to induce forking near the surface, and yet there is sufficient nourishment in the mixture to sustain the plant during its growing season. As an experiment I had some holes made 5 feet deep, and some of the Parsnips measured 4 feet 7 inches, which shows the depth they will go if they only get the opportunity.

Parsnips are best sown as early as the state of the soil will permit, Carrots not before the beginning of April, and Beet the last week in that month or first week in May. As regard varieties of Parsnip The Student is best, while for Carrots New Intermediate, and Beet Pragnell's Exhibition and Blood Red.

TOMATOES.

Tomato seeds should be sown in a little heat, very thinly, about the beginning of March, and when the young plants are fit to handle, potted in 3-inch pots, and immediately they are ready for another shift into 5-inch pots. For exhibition they are best grown in an intermediate or a cool house, where they can enjoy abundance of air. It is a mistake to have the soil too rich to begin with, and if they are to be planted out better have poor soil and moderately firm, as they make shorter jointed wood and set freely. They are best trained to a single stem.

When a good crop is set thin out all deformed fruit, when feeding may commence. It is a good time then to give them a top-dressing of manure, and when the crop is swelling freely, ample liquid manure should be given to encourage the fruit to swell to a good size. Very often it is found difficult to have sufficient fruit ripe at once for certain shows. Any that would be too early should be packed in tissue paper and sawdust just when beginning to colour, and stored away in a dry room. In this way they keep in sound condition for a month or more, and will be found in perfect condition when they are taken out. As to variety, none excels Perfection when in good condition.—JAMES GIBSON. —(Read at a meeting of the Croydon Gardeners' Mutual Improvement Society).

SUPERNUMERARY VINES.

WHERE new vineries are made or old ones replanted a good opportunity occurs for the employment of supernumerary canes. There is more advantage in having a double set of rods in a vinery than many persons appear to think. When extra canes are planted there is not the necessity for cropping the main Vines so heavily, and they must thus benefit by the indulgence. Presuming the border is inside the house all that is required is to add a few feet to its width for the extra Vines. Lean-to vineries of good width are the most suitable for this double cropping method.

Where the border is, say, 10 feet wide, the Vines intended for permanent occupation are, as a rule, planted within 6 inches of the front wall and the supernumeraries 5 or 6 feet from them. Instead of cutting down the latter, as is usually the custom with the former, at least 4 feet of cane is retained. If the Vines are extra strong a couple of feet more may be left, securing them to stakes up to the wires under the roof. Growth is confined strictly to the uppermost shoot on the

cane, and this after the first season's growth may be shortened to from 3 to 6 feet, according to their strength. These canes will provide at least half a dozen bunches the following year. Such a crop of fruit must be an advantage, and in the meantime the more closely shortened permanent rods are being strengthened. As these extend upwards the temporary Vines will require some of the lower spurs cut off annually to give additional light and space to the main rods. The supernumeraries are made to fruit further upwards yearly until they are finally ousted by the permanent Vines requiring the whole of the space.

In more instances than one I have fruited these extra Vines for eight years, and with such results as to justify a continuation of the practice described. Varieties that ripen heavy crops of fruit satisfactorily with a minimum of labour expended are the most suitable, such as Black Hamburgh, Madresfield Court, Alicante, and Lady Downe's, with Foster's Seedling as a white variety.—E. M.



AN EARWIG TRAP.

FROM Mr. J. H. Hislop I have received one of his specially designed 9-inch flower pots, which is fitted with a water-holding rim $1\frac{1}{2}$ inch wide and 1 inch deep. By keeping this rim full of water earwigs are prevented crawling on to the plants. If these pots can be sold at a reasonable price they should be a boon to Chrysanthemum cultivators. Earwigs have wings, and sometimes use them, but the common mode of travel is by crawling. The rim around the pot would easily be kept supplied with water when applying it to the plants. During hot weather the water would evaporate, but this would obviously be advantageous to the plants rather than otherwise.

DECORATIVE CHRYSANTHEMUMS.

Many varieties of Chrysanthemums of great beauty are not large enough for exhibition stands, but their value ought not to be overlooked for house decoration. Among them are the following:—

Mrs. Conway.—Soft yellow in the centre, fading almost to white at the tips; truly a charming variety. Dwarf and free.

Gaetano Guelfi.—As a white flowering decorative variety this is unexcelled; the narrow, twisted, drooping florets render it quite unique.

Meduse.—Terra cotta and old gold colour, flowers of medium size, with drooping florets.

Charles Blick.—One of the best of yellow flowering varieties for decorative purposes.

Mr. T. W. Sanders.—A handsome variety with long drooping florets; the colour, a soft shade of canary yellow, is most pleasing.

H. Shoesmith.—Light buff yellow with gracefully drooping florets.

Challenge.—A late flowering American variety that should prove valuable; the colour, deep yellow, is most desirable.

Marie Louise.—Pure white, drooping florets; late flowering.

Souvenir de Madame Bullier.—Intensely rich crimson or wine red florets, which recurve gracefully.

R. Everard.—The plum coloured florets are quite distinct from any I know in the whole of the Japanese section.

W. Firkins.—A lemon coloured sport from Bouquet des Dames, which is in itself a serviceable variety; much better cultivated in Scotland than in England.

George Goodson.—A golden yellow bronze shaded sport from La Triomphante, of compact growth and free flowering. All the above belong to the Japanese section.

THE N.C.S. JUBILEE EXHIBITION.

I observe that the Society purpose offering most valuable prizes, to be competed for in 1896. This early notification of the course the schedule will take is commendable, and will serve to put intending exhibitors on the *qui vive* as to the behaviour of the newer introductions in the various sections. Such experience will enable them to master any peculiarity of treatment required. I am pleased the single-flowered section is given such a prominent place as this early notice suggests. If the Committee can see its way clear to issue the prize schedule early in December at the latest, it will have done a good deal toward insuring success, and clearing itself of the remark often heard, "What is the use of sending out the schedules so late as this? One does not know what to grow."

The note I have penned herewith is the more justifiable when we take into consideration the fact of the Society offering prizes for varieties in cultivation when the Society was first established. I trust the Committee will make itself perfectly clear on this point, as to how the sorts are to be included or stipulated for. It would be a pity if such a point was left to mere guess work. Of this, though, I do not doubt. From what I have heard I expect to see not only a most liberal, but a model prize schedule.—E. MOLYNEUX.



WEATHER IN LONDON.—Dull cloudy weather has chiefly prevailed in the metropolis during the past week. Rain fell heavily on Sunday morning last, but, with the exception of slight showers, none has fallen since. Tuesday was a splendid day, warm bright sunshine prevailing. At the time of going to press the sky was dull, but with every appearance of the sun breaking through, raising hopes of fine weather for the holidays.

— **THE WEATHER IN THE NORTH.**—Up to the 9th inst. winter had not quite departed. On three mornings of the week preceding frosts of 5° and 6° were registered, and cold weather had generally prevailed. Sunday was clear, with a sharp north wind; Monday dull and chilling. In the evening rain set in, with a high N.W. wind, which continued little abated on Tuesday morning.—B. D., *S. Perthshire*.

— **THE THOMSON MEMORIAL FUND.**—In consequence of the insertion of additional names at a busy moment when preparing for press last week some asterisks were omitted from the list on page 297, and consequently the members of the English Executive Committee were not correctly indicated. These are Messrs. A. F. Barron, Bruce Findlay, P. E. Kay, G. Monro, G. Norman, F. Sander, J. Smith, R. Tait, Owen Thomas, H. J. Veitch (Chairman), J. G. Veitch (Honorary Secretary), H. Williams, and G. Wythes.

— **PICOTEE-EDGED CINERARIAS.**—With the present extensive range in colour of the best strains of Cinerarias it would appear difficult to find anything new in colour. When looking through Messrs. Sutton's collection at Reading the other day I noticed one plant decidedly edged in true Picotee fashion. Each floret constituting the fully rounded blossoms of a rosy crimson hue was distinctly edged with white. If this type can be maintained (and I see no reason why, as the plant noticed was one obtained by careful crossing and selecting), a distinct and pleasing break will have been obtained that will add interest to an already useful as well as pleasing section of winter-flowering plants.—E. MOLYNEUX.

— **HEATING BY HOT WATER.**—I was glad to see Mr. W. Taylor's article on page 252 on heating, as I am particularly interested in this subject. I should especially like to see more about coating mains with asbestos and other mixtures. There must be an enormous waste of heat when the mains are not coated with something. What would be the cost of coating them per square foot or lineal foot length of pipe, and what would be the estimated saving in fuel? If we were to suppose that long lengths of mains cost, say £20 to coat them, would the outlay be covered in twelve months in the fuel saved? It was thought by some that the Liverpool boiler contest was a white elephant, but I am glad to find that the figures I compiled for the Journal have been studied by Mr. Taylor at any rate, and may after all prove useful to some. I shall at the first opportunity revert again to Mr. Taylor's article on heating, in which there are some ideas worthy of note and full consideration.—W. BARDNEY.

— **THE CHARLES COLLINS' FUND.**—A meeting of the Committee of the above Fund was held in the Horticultural Club Room, Hotel Windsor, Victoria Street, S.W., on Monday, April 8th, Mr. George Gordon occupying the chair. It was reported that the amount received was £66 2s. 9d., included in this sum were two subscriptions of a guinea and 5s. respectively not yet to hand. The Hon. Secretary read a letter from Mrs. Collins stating that she had an opportunity of acquiring an old-established and flourishing baby linen and fancy business for £83, this sum including cost of fixtures, goodwill, and stock. She mentioned that prior to her marriage she had been apprenticed to and had some years' experience in a similar business, and felt sure from the thorough investigation which had been made into the one offered that it would afford a comfortable livelihood. It was unanimously agreed that the sum of £66 2s. 9d. be paid to Mrs. Collins for the purpose, and the Treasurer was accordingly authorised to draw and forward a cheque for that amount. The Committee also desires to thank all who so generously responded to the appeal; and especially Mr. H. J. Jones of Lewisham, who gave a second donation of £2 18s., making £5 in all.—T. W. SANDERS, *Hon. Secretary*.

— **GARDENING APPOINTMENT.**—Mr. R. Leech has been appointed head gardener to Mrs. Bickham, Gorsefield, Bowdon, Cheshire.

— **MR. THEODORE GROOM**, late Scholar of St. John's College, Cambridge, has been appointed to the Professorship of Natural History, Royal Agricultural College, Cirencester.

— **WE** learn that Mr. Edward Step, the popular writer on botanical subjects, has written a pocket-guide to British wild flowers, with coloured illustrations, to be published by Messrs. F. Warne & Co. The title of the book will be "Wayside and Woodland Blossoms."

— **"FINE STRAWBERRIES," "AUGUSTE NICAISE."**—In the gardens at Grimston Park, on April 6th, a magnificent dish of the above Strawberry was gathered. The fruits, twelve in number, weighed 18ozs. The heaviest fruit weighed over 2ozs., and the largest measured 7½ inches in circumference, being of excellent flavour. A finer dish of fruit would be difficult to secure.—J. S.

— **ROYAL METEOROLOGICAL SOCIETY.**—At the ordinary meeting of the Society, to be held by permission of the Council of the Surveyors' Institution, at 12, Great George Street, Westminster, on Wednesday, the 17th inst., at 7.30 P.M., papers will be read by F. Campbell Bayard, LL.M., F.R. Met. Sec., and William Marriott, F.R. Met. Soc., on "The Frost of January and February, 1895, over the British Isles."

— **AMERICAN FRUIT TRADE.**—A New York contemporary says notwithstanding the fact that fresh fruits come across the continent from California by the train-load at nearly all seasons of the year, dried and canned fruits are annually exported from the same State in still greater quantities. Last year dried and canned fruits equivalent to 30,000 car-loads, or 140,000,000 lbs., were distributed throughout the world.

— **ASCLEPIAS NIVEA.**—This is a small but healthy and very free blooming tender species that thrives admirably out of doors in the summer and blooms abundantly after July. Its flowers are white, and although small they are numerous and useful for cutting. It likes good soil just as well as any other plant, but will also live and bloom well in ground so warm and dry in summer that most other plants would fail in it, and we like it on this account, and plant a clump of about fifty plants of it every summer.

— **OBSERVATIONS ON CURRENT TOPICS.**—"E. M." thinks Lady Hume Campbell Violet is not white, as inadvertently stated by a correspondent, but blue. He also thinks Ivy does produce true roots from the stems and sends a sample. He imagines there is a mistake in the date of the Batley Flower Show (November 17th), as that date falls on a Sunday. He believes April or May too late for sowing seeds for main and late crops of Broccoli as advised by Mr. Iggulden, especially if the plants have to be grown in cold heavy soil. He also thinks Tomato plants are often too small when planted in the open. His plants are now 3 inches high, and will soon be transferred to 5½-inch pots for gaining strength by the time of planting.

— **WHITE VIOLETS.**—I found through an error arising from the shifting of names that I referred on page 293 to Lady Hume Campbell as a double white. Not having seen the variety previously I was not aware that it was a pale blue form sent, hence I have to retract. The white in question was Swanley White, I am informed; certainly a very fine-flowered variety, and would be very highly esteemed were it also more fragrant. As Swanley White seems to be Comte Brazza's White, we have this section materially reduced; indeed, this form being much the best, it seems useless to grow any other. When complaints are made with respect to the indifferent flowering it probably results from having failed to increase stock by means of the stoutest and most robust runners, or of crowns when divided.—A. D.

— **KALE THOUSAND-HEAD.**—Although this is the coarsest growing of all the Kales, and in good, deeply worked soil attains huge dimensions, yet the plants seem to be exceptionally hardy when grown in less rampant form. I have recently seen on the Surrey sand, in an open exposed situation, some remarkably green uninjured breadths, and can envy the possessors that they have such promise of tender greens immediately, whilst almost everywhere all other winter greens are so destroyed. Obviously Thousand-headed Kale should not be planted too early, and the plants are preferably grown in rather firm soil, where the usual tendency to excessive leaf growth will be checked, and in the most exposed positions. A green Kale that in ordinary seasons we are disposed to regard as only fit for cattle, is this year indeed a valuable crop.—D.

— ROYAL SOVEREIGN STRAWBERRY.—Mr. E. Parry, The Gardens, Castlemaes, Twyford, Berks, sends us a few very good fruits of this Strawberry, informing us that he has been gathering similar fruits for the last fortnight five to seven from each plant, the runners taken the third week in June, and the plants placed in 6-inch pots early in August.

— HERR W. SIEBE has started on a botanical exploration of Asia Minor, with the special object of making collections of the almost unknown flora of Cilicia Trachea. Setting out from Cyprus, he proposes to visit Mersina in southern Asia Minor, proceeding then to the Kalykadnos Valley and the adjacent mountains, the steppe district of Konia, the maritime district of Egerdir, and finally, in the summer, the elevated alpine region of Geigdagh.

— CASSAVA CULTURE IN AMERICA.—Mr. H. W. Wiley, the chemist to the United States Department of Agriculture, recommends the cultivation of the Cassava, *Manihot utilisima*, in the most southerly of the United States. It furnishes an excellent food for men and cattle; though, from the small proportion of nitrogen which it contains, it cannot take the place of bread-stuffs. A very good kind of tapioca may be made from it. The yield, in sandy soils, is from 4 to 5 tons per acre.

— CAPE GRAPES.—The "Goth" steamship arrived from the Cape the other day with a cargo of Grapes, amounting in all to about 1292 boxes and cases of white and red varieties, the quality ranging from indifferent to very fair, but the prices were not those of a few years since. The consignments were sold rapidly—the whites at an average of 10s. per box (equal 7d. per lb.), and the reds fetching 35s. per box, or about 8d. per lb. The lowest price (for wasters) was equal to 3d. per lb., and the highest all over was 15d. per lb.

— THE DELIGHTS OF GARDENING.—Everyone, says a transatlantic journal, who has once tasted the real delights of gardening returns to it with zest. Tranquilly pursued it gives a certain richness to life and thought, a wholesome basis for intellectual labour. It is a common bond between the wise and the ignorant, a pursuit wherein men of different station can interchange rôles and mutually impart knowledge. Rivalry is of the friendliest. The cottager's Rose may surpass that of a duke, and the interest of one in his specimen be as keen as that shown for the flower of the other.

— THE WEATHER LAST MONTH.—March was changeable and showery, but without severe frost. We had heavy gales on the 23rd and 24th which blew down several trees, and showers of snow on the 4th. The ice on the lake was then 6½ inches thick. The wind was in a westerly direction twenty-four days. The total rainfall was 2.10 inches, which fell on twenty-seven days, the greatest daily fall being 0.30 inch on the 28th. The highest reading barometer was 30.124 on the 16th at 9 A.M., and the lowest 28.462 at 1 P.M. on the 28th. Highest temperature in the shade, 59° on the 17th and 23rd; lowest, 24° on 3rd. Mean of daily maxima, 48.61°; mean of daily minima, 34.80°. Mean temperature of the month, 41.70°; lowest on the grass, 19° on the 3rd; highest in the sun, 115° on the 11th. Mean temperature of the earth at 3 feet deep, 37.80°. Total sunshine, 104 hours 45 minutes. There were two sunless days.—W. H. DIVERS, *Belvoir Castle Gardens, Grantham*.

— DEATH OF AN OLD ROYAL GARDENER.—By the deeply regretted demise of Mr. John William Thomson, which occurred on Tuesday night, March 28th, at Hayward's Heath, the only man surviving in the last decade of the nineteenth century who was connected with the Royal Gardens in the reign of George III. has been removed. Mr. Thomson, who had on March 20th completed his ninetieth year, had resided at Hayward's Heath since 1876, where he followed his profession as a horticulturist, though of late years his extensive greenhouses had been allowed to pass into a state of dilapidation. During his long life he came into contact or had correspondence with many eminent men, of which he was exceedingly proud, and was a veritable store of anecdotes and reminiscences, extending into the reigns of four monarchs. A Shropshire man, Mr. Thomson was educated at Shrewsbury, a school-fellow being Darwin the great naturalist. He commenced his gardening career in the Royal Gardens of Cumberland Lodge and Windsor in the reign of George III., and assisted in laying out and planting the famous Virginian Water Gardens. Mr. Thomson was also gardener at Syon House, and the first flower of *Vanda teres* that opened there in 1833 was presented by him to the future Sovereign. Mr. Thomson, who had survived three Dukes of Northumberland, left the ducal employ in 1835, and for several years was the proprietor of a nursery at Hammersmith.

— THE NEWCASTLE-ON-TYNE SPRING SHOW will be held in Olympia on Wednesday and Thursday, 24th and 25th inst. Last year the show was a very fine one, and a great success. This year the Committee has added classes for groups of plants and Roses. The prizes in the cut flower classes have also been increased.

— MARCH WEATHER AT DRIFFIELD.—Mean temperature at 9 A.M., 40.98°; wet bulb, 39.27°. Mean maximum, 47.44°; mean minimum, 33.89°. Highest, 58.08° on the 22nd; lowest, 22.0° on the 3rd. Mean of maxima and minima, 40.66°; mean range, 13.55°. Mean radiation temperature on grass, 27.04°; lowest, 12.0° on the 3rd. Rainfall, 2.57 inches. Number of rainy days twenty-three. Greatest amount in one day 0.47 inch on the 9th. There were no sunless days.—W. E. LOVEL, *Observer, York Road, Driffield*.

— POPULARITY OF BANANAS IN AMERICA.—During the year 1894 the importations of Bananas into the United States amounted to nearly 18,000,000 bunches. Heavy cyclones throughout the West Indies last autumn destroyed much of this year's crop, and the few cargoes now coming from Jamaica and Cuba bring high prices, some Bananas of the first grade selling last week for 1 dol. 40 cents. a bunch by the truckload. Nearly one-third of all these imports usually come from Jamaica alone, so that the market has been considerably affected by the shortage.

— AZALEAS IN NEW YORK.—The most conspicuous objects in the windows of the florists' shops in spring are compact plants of Azalea in full bloom. It is rather strange that the newer varieties are mostly those which bear double flowers, since the single-flowered kinds, says the "Garden and Forest," are generally more effective. The fashion, imported from France, of swathing the plants as well as the pots with ribbons and paper and decorating them with bow-knots of various material has nothing to commend it. Much of the beauty of a well-grown plant is in its form, and when this is hidden by upholstery the plant loses half its charm.

— TORQUAY DISTRICT GARDENERS' ASSOCIATION.—The third annual meeting of the Society took place on Friday, April 5th, Dr. R. Hamilton Ramsay being in the chair. The Hon. Secretary (Mr. F. C. Smale) read the report and balance sheet, the latter showing a surplus of £4 15s. 11d. After the election of officers, the forthcoming summer outing was discussed, and it was decided that it should take the form of a trip over Dartmoor. At the close of the ordinary business a pleasing ceremony took place, Mr. F. C. Smale being presented by the members with a handsome mahogany knee-hole writing table with brass-handled drawers. On a plate affixed was inscribed, "Presented, with a pair of brass candlesticks and inkstand, to Mr. F. C. Smale, by 100 of the officials and members of the Torquay District Gardeners' Association, in recognition of his zealous and efficient services as Honorary Secretary to the Society." The President made the presentation on behalf of the members, Mr. Smale suitably replying.

— FRUIT PROSPECTS.—There is a promise of a fine bloom on most hardy fruit trees this spring. Of course, that may not mean a good fruit crop, because there are so many slips between the cup of promise and the lips of realisation. Still, nothing is more obvious than is the fact that if there be little or no bloom there is neither hope or realisation. I have remarked the curious comparatively even condition of Apples, Pears, and Plums just now, buds seemingly to be in about the same stage of development. Pears and Plums may bloom a little later than usual perhaps, and a very good thing too, but Apples can hardly be earlier, and probably will be no later. Still, when once the bloom does make a start to open we must expect to see Pears and Plums rather in advance. It is specially interesting to find such a bloom show following on such a comparatively cold wet summer and autumn as was found last year. Still, we had a good ripening late autumn, and certainly a very maturing winter, if a long spell of intense cold and a remarkably dry late winter and spring conduce to that end. Without doubt, some good warm rains would render the trees just now great service, and help to expand the bloom. Very likely we shall be able to judge of probable fertility or otherwise by examining the organs of fruition, and if pollen be abundant then we may very reasonably look for good and plenty of fruit. There can be no doubt but that a heavy fruit crop will be of exceeding service this season. It would furnish very many persons with means they now lack, and in that way stimulate trade, as the wealth of the nation is added to. It would also give a valuable stimulus to fruit culture. It is true that in a purely decorative sense we see very much of beauty in luxuriant tree blooms, but our chief aspiration, of course, is for the fruit crop, and that the hard winter leads to the hope will come in due course.—D.

— THE PEOPLE'S PALACE AND EAST LONDON HORTICULTURAL SOCIETY.—This Society recently held its first spring show. In order to place the exhibitors on an equality, the schedule of prizes was divided into two sections, one including all exhibitors, some of whom, living on the confines of the Victoria Park, cultivate under much more favourable conditions than those in thickly populated districts, and those living in the latter or congested districts, such as Mile End, Limehouse, and Stepney. These divisions were found to work well. The exhibitors were working people, and several entries were made in all of the classes.

— MANURING HOPS.—During 1894 several experiments in the manuring of Hops were carried out by Mr. Monson, F.C.S., and from the results obtained he is of the opinion that by applying 3 cwt. of kainit per acre, at a cost of 6s., an increase of 2 cwt. of Hops may be expected. He warns growers, however, that this manure should be applied quite early in the season, for it increases the colouring matter in the Hops if put on late. Another conclusion brought out by the experiments is that 10 cwt. of gypsum will take the place of a ton of lime, so that the former may be used to advantage where the more bulky fertiliser would have to be brought from a long distance. Mr. Monson also dwells on the importance of using phosphates with nitrogenous manures, as the latter, when used freely alone, deteriorate the quality of Hops.

— WOLVERHAMPTON GARDENERS' IMPROVEMENT SOCIETY.—On Tuesday, April 2nd, Mr. Varty of Moseley Court gave a lecture to the members of the above Society on British Ferns. The lecturer stated that of all plants British Ferns were perhaps the most neglected generally, though some of them were among the most beautiful plants in existence, and pleaded for a more extended interest to be taken in them. The lecturer had a magnificent collection of dried specimens, some of them almost unique, and he greatly interested and amused the members present by recounting his difficulties and adventures in search of them. He specially mentioned old Mr. Stansfield of Todmorden as a most noted collector of British Ferns, and urged young gardeners to take up the study and collection of these plants. Needless to say Mr. Varty had the hearty thanks of the meeting for his most instructive paper.

— MUSHROOM SPAWN.—It may be that "D." is right in his estimate of the spawn as supplied to the first-class garden of which he speaks. Still, I should like to point out that with different methods of treating, manure, and with soils of various staples, Mushrooms may be produced of totally distinct qualities; so much so, in fact, as to appear of more than one variety; yet all from the same box of spawn. Given a properly prepared bed of manure, surfaced with soil of good sound texture, beaten down firmly; then, if the spawn works well, as it should do, generally speaking, there will be found in due time Mushrooms large, firm, and fleshy. It is well known that too much fire heat will cause a crop of small weak Mushrooms. I cannot understand that it is necessary to bear such a disappointment as "D." speaks of in silence. My experience of "leading houses" has been such that I think no gardener need be deterred by fear of a "row" from making any just and reasonable complaint.—JOHN WRIGHT, *Kelston Knoll Gardens, Bath.*

— NEW METHOD OF PRESERVING FRUIT.—M. Petit has noticed that by preserving fruits—Grapes, for instance—in a sealed vessel, filled with the vapour of alcohol, the said fruits keep well. On October 31st, 1894, that is, at a very late season, some Chasselas Grapes were cut and placed in a cellar, closed as firmly as possibly by a wooden door; in the cellar was a jar containing 100 cubic centimetres of alcohol; the Grapes were placed on wooden frames. In two other similar cellars, one closed, the other open, but where there was no alcohol, the Grapes were similarly arranged. The temperature of the caves ranged from 8° to 10° C. (50° F.). On November 20th, in the open and in the closed cellar, where there was no alcoholic vapour the Grapes were spoilt and rotten, whilst in the cellar in which the alcohol was placed the Grapes were in perfect condition, and free from mouldiness. On December 7th the Grapes were in still finer condition; tasted by critical connoisseurs, they were found excellent and of perfect flavour. In laying these notes before the Société d'Agriculture, M. Tisserand drew attention to the simplicity of this mode of preserving fruit; it can be practised anywhere, and needs no special apparatus. In every place where a uniform low temperature can be assured, Grapes can be stored in closed compartments, adding alcohol either in a jar, or even, according to M. Tisserand, saturating with it the wooden framework which support the Grapes. The cost of the alcohol is, it appears, very small.—(*Revue Scientifique.*)

— PINE CONES.—Occasionally vessels from the south of Europe bring over small numbers of what are called nut cones. They are really the cones of *Pinus pinea*, in shape and general colour resembling somewhat a small Pine Apple. When brought into some warm place, as, for example, near a steam radiator, the scales quickly begin to reflex, commencing at the base, and turning back release the pinons or edible seeds. The motion of the scales as they open is so rapid as to be plainly visible, and is quite interesting to people who have never seen the spectacle, and this exhibition gives a value to the cone apart from the nuts which it contains.—(*Garden and Forest.*)

— MUSEUM D'HISTOIRE NATURELLE, PARIS.—A meeting of the professors and assistants has been held, under the presidency of Mr. Milne Edwards, whereat it was decided that periodic meetings of a similar kind should be held, and a bulletin published. The object of these meetings is to promote co-operation between the several departments, and to multiply the points of contact between specialists who each in their department contribute to the advancement of science. The relations between the correspondents, collectors, and travellers for the museum, and the officials will, it is hoped, be cemented. At the meeting an account of the work done in each department will be given, and collectors will thus be enabled to appreciate the value of their collections, become witnesses of the use made of them, and better enabled to judge of the requirements of science. At the same time they will contribute information as to the localities and the conditions under which the collections were made. Six Secretaries were nominated, Mons. Poisson undertaking the duties on the part of the Botanical Department.

— POLYEMBRYONY.—The phenomenon of polyembryony, or the development of two or more embryos in a single seed, has been the subject of several investigations. It has been shown that it may be due to the division of the nucellus, or to the fusion of two ovules, or to the presence of several embryo-sacs in one ovule. Further, Strasburger has found that it is often to be accounted for by the ingrowth of some cells of the nucellus into the embryo-sac, which there develop into adventitious embryos; in other cases he ascertained that two egg-cells are normally present in the embryo-sac, which on fertilisation give rise to two embryos. Finally, Dödel and Overton showed that it was possible for the synergids to develop into embryos. More recently, M. Tretjakow, in a short but interesting paper (*Ber. d. Deutsch. Bot. Gesell.*, February, 1895), describes yet another cause of polyembryony. In *Allium odorum*, in addition to the normal embryo formed from the egg-cell, not infrequently the antipodal cells also give origin to embryos. Sometimes only one of these develops, but M. Tretjakow has observed all three antipodal cells start into growth and give rise to three embryos. These antipodal embryos commence their development immediately after the fertilisation of the egg-cell, and the cell divisions, at least in the earlier stages, correspond exactly with those in the embryo formed from that cell. The Russian author, accepting the view that the antipodal cells are homologous to the vegetative cells of the prothallia of Ferns, compares these antipodal embryos with those arising by apogamy on Fern prothallia.—(*Nature.*)

— SCILLY FLOWERS.—If the man who makes a blade of grass grow where none grew before deserves well of his country, the late Mr. Augustus Smith and his nephew, Captain Dorrien Smith, should be held in immemorial regard by the Scilly islanders. Between them they have, as Lords of Scilly, established an industry whose profits fully make up for the loss consequent on the suppression of smuggling and wrecking, and the ruin of the local shipbuilding trade. When "King Augustus" became autocrat of all the Scillies, he found the inhabitants in a most deplorable condition; so acute was the general poverty that the Imperial Government abandoned the collection of taxes, and even granted subsidies to keep the population alive. The happy idea then occurred to Mr. Smith to try the experiment of raising early flowers for the London market. Having imported a cargo of good bulbs from Holland, he established a garden at Tresco, the island where he had built a lordly mansion, and the venture proving profitable, the Scillonians in St. Mary, the biggest island, abandoned agriculture for the cultivation of the beautiful Narcissi. From that date to this the industry has thriven wonderfully, in spite of Continental competition. But the late terrible frost extended to Scilly, and not only delayed the flower harvest, but largely diminished the yield. We learn, however, that on two days last week the exportation of Narcissi from St. Mary's amounted to 26 tons, all being intended for the London market. It says much for the Smith dynasty that although the land is many hundred per cent. more profitable to its cultivators than before the introduction of flower farming, rents have not been raised.—(*Globe.*)

ALPINE FLOWERS.

MAKING AND PLANTING ROCKERIES.

(Concluded from page 247.)

FOR the accommodation of plants which require a greater supply of moisture than is needed by the majority the base of the rock-work will provide suitable positions. Here some provision can be made by keeping the places to be occupied by the flowers a little below the ordinary level. For some of these plants the writer has the base of his rockeries on the level of the walks, several pockets sunk below this, and separated by a stone edging from the walks.

Some very effective rockeries are made of a mound of earth almost oblong in form, with stones disposed irregularly about them, but the evil of these, as generally made, is that the stones are not arranged to conduct the rain which falls to, but from the plants. This is indeed a fault to be found in most rockeries, and the terrace system will, taking everything into consideration, be found the most

In preparing stations for many plants it will be found advantageous to place two stones of good size in the form of the letter V, the point downwards, but leaving a small open space about an inch in width. If the plants are to be turned out of pots with the ball of earth attached, a little soil should be placed at the bottom of the V, and well pressed down so that the ball of earth may rest solidly on it. Any crevices left between the ball and the stones should be carefully filled with earth made firm, care being taken that this operation is not performed when the soil is too damp. In planting Primulas, and a very large number of Alpines, this plan of fixing the plants between the stones will be found very valuable. Plants received without earth attached should be planted in a very careful way. It will generally be found profitable to be at the trouble of placing these in small pots, and allowing them to remain in a frame or cool greenhouse for a short time, then turning them out of the pot with the ball of earth intact. The trouble involved in this will be well repaid by the plants becoming more quickly



FIG. 54.—EXPRESS GRAPE GROWING—VINES PLANTED MARCH, 1892. (See page 305.)

(Photographed by H. Jancowski, August, 1893.)

satisfactory for the well-being of the plants. It may, however, be well to say that for some time a terraced rockery will present a very artificial appearance, but this will disappear with the growth of the plants, and as the mellowing influences of time act on the stones.

In preparing the "pockets" for the plants the question of a suitable compost will present itself. Plants with long tap roots which penetrate into the main body of soil of which the rockery is composed, are not so particular, as a rule, in the quality of their food, but for all choice plants suitable soil should be provided. For general purposes a sandy peat is very useful, but as this is not always obtainable a good loam with a liberal addition of leaf mould, well decayed, will suit the requirements of the large majority of plants. Those that are well known to be lime lovers, such as the Encrusted Saxifragas, Sedums, Houseleeks, and others, should have old lime rubbish or broken pieces of limestone added to the soil, and many plants are much benefited by a considerable admixture of grit. The hollows intended for plants requiring a large supply of moisture should have a light peaty soil, and before placing this in the drainage must be made good, or at least a few inches of stones and gravel put at the bottom to prevent the earth from becoming soured.

established, and the greater vigour they will display after being planted out.

In the selection of positions for the plants there is room not only for considerable exercise of taste, but also of judgment in selecting the most suitable positions for the welfare of the plants. Thus, such sun-loving flowers as the Stonecrops should have warm and sunny situations. The Primulas should generally have partial shade, and such flowers as the Mossy Saxifragas will do well enough in shady spots, with the exception of some few such as Wallacei. For plants requiring a little shade the divisions of the pockets can be so placed as to give them what they require, if provision for the requisite shelter from the bright sun is not afforded by the general construction of the rockery.

Where trailing plants are grown provision should be made in the way of higher terraces or elevated portions of the rockery. In order that these trailing plants may completely fill the "pocket" they occupy, it is found, as a rule, preferable to plant them well back and to place flat stones between the plants and the front of the terrace, so that the stems may not decay from the damp earth. Where the crevices between the stones are numerous or unsightly

and cannot be covered by trailing plants, they may be not only concealed but frequently made ornamental by placing in them various plants, such as Encrusted Saxifrages, Houseleeks, Stonecrops, dwarf Campanulas, and others which will readily occur to the reader. Even if the plants are carefully tended so that one does not outgrow another above ground, it is unavoidable that those which make large roots should in time encroach on the feeding ground of others. This weakens the latter, and it will be found necessary to re-make the rockery at occasional intervals. This need only be done after a considerable time, but annually some plants should be lifted and replanted, fresh soil being placed in the pockets.

For many Alpines an annual top-dressing of soil is required, and this may well be done in the spring, but should these plants have become too high above the soil some fresh earth should be added in the autumn. The frequent top-dressings eventually raise the level of the pockets above that of the stones which support the terrace, so that heavy rains or heavy watering will wash away the soil. This must be prevented by the addition of stones to retain the earth in position.

The mention of watering induces me to say a little on this head. While the differing conditions under which Alpines are grown in gardens as compared with those which prevail in their native habitats make it impossible to lay down any hard and fast rule on this question, one is warranted in saying that Alpines do not receive enough of moisture in the summer. Too often they have only mere dribbles applied instead of the copious supplies they require. There is no need for pouring the whole of this on the plant itself, but a good supply should be poured beside it. On warm evenings, after the sun has gone off them, I frequently water not only the rockeries, but also the gravel walks adjoining. This raises a genial moisture, which I am convinced is very beneficial to the plants.

There are many little details connected with the erection and planting of rockeries and the successful cultivation of the Alpine flowers which cannot be fully treated of at the present time. Many of these are the outcome of experience, and will generally be discovered by anyone possessed of a fair amount of knowledge of plant life. In growing Alpines we require to adopt Opie's advice as to how to mix colours—"With brains;" indeed, it may well be given to those who wish to grow flowers of any kind.—S. ARNOTT.

MODERN GRAPE GROWING.

(Continued from page 294.)

INSIDE OR OUTSIDE BORDERS.

THE question is often asked, Which are the best—inside or outside borders? That all depends on the knowledge, skill, and attention likely to be at command.

I believe it is possible with borders confined entirely to the inside to grow Grapes of better quality and handsomer appearance than it is with outside borders only, but there is a considerable increase of labour, and they must have the most skilful management. Where quality and appearance are the first consideration, and sufficient skill and time to use it are likely to be given them, I say make the borders inside, but if the necessary operations are at any time likely to be put off for even a day or two after they require attention, or if the aim is only to grow such fruit as shall be worth about a shilling a pound, I advise the borders to be outside, for these can, to a very great extent, take care of themselves. Not only do they catch the rain and the sweetening, pulverising action of the natural atmosphere, but also require less feeding, because the water from the clouds, as well as bringing fertilising matter with it, is distributed much better than we can do it artificially; it consequently takes less of it to moisten a certain quantity of earth, and it follows that comparatively little artificial watering is needed, and therefore less of the manurial substances are washed out. Also suitable soils when exposed to the atmosphere have the power of absorbing from it a considerable amount of moisture during nights and cool days.

I know some amateurs who have their borders entirely inside, and succeed well, but they devote a great deal of time to them personally, and some of the work is rather laborious, therefore it should only be undertaken by those amateurs who have a real love for the occupation and abundance of time on their hands, and by those gardeners who can afford to put a reliable man in charge, and hold him responsible for the vinery before all other work. A great difficulty, especially in large establishments where the duties are so varied and numerous, is that there is always more work than can be got through, consequently much of it has to be put off perhaps five minutes later than it ought to be, and it is astonishing how these minutes tell on the life and health of the occupants of our houses.

Besides the border which is confined to the inside, and that which is entirely outside, there is the one which is most general, and I think least desirable—part outside and part in. That Vines often do well and produce good Grapes by this arrangement I admit, but in ninety-nine cases out of a hundred it will be found that it is the outside border which does the work, and that all the attention bestowed on the inside portion is thrown away, for there are few or no roots there.

I see no objection when the wall is built with arches, or pillars with spaces between, to having just sufficient width inside, say 18 inches, for planting the Vines and allowing the roots free scope to the outside border; the stems of the Vines are thus protected, and the planting can be done at any time of the year. The narrow space should be securely walled off to confine the few roots that may be produced there, and allow all the rest of the floor to be used for other purposes.

If the Vines are planted outside there is another way of protecting the stems—viz., by having small holes cut obliquely through the wall just below where the surface of the border will come to, so that all the outside portion of the stem can be covered by the soil.

I prefer either of the last two systems to the "go where you like" plan of having borders both inside and out. I like to know where the roots are, although it must be owned that one sometimes gets deceived, for it is not always that bricks and mortar will prevent them getting outside when we think we have made them prisoners.

The first thing to do in connection with border-making is to secure

GOOD DRAINAGE.

We must decide where the surface line is to be, then reckon not less than 2 feet or more than 2½ for soil, 6 to 10 inches for rubble, and then a 3-inch drain pipe should be laid in a trench not less than 6 inches lower still.

In finishing the necessary excavating we make the bottom slope slightly towards where the drain pipe is to be; 1 inch in 2 feet is sufficient. We next make the trench and lay the pipe, giving it a slight fall to the outlet. A layer of rubble, or whatever is used for drainage, is placed over the part intended for border, and including the drain pipe, using something small on the top, say cinders, small stones, crocks, or whatever is handy, to prevent the soil running amongst the drainage.

Although I do not find it necessary now to take all this trouble in providing drainage for any new Vine border or a portion that may be added to an old one here, the first was made in this way, and I should advise anyone commencing to follow the same plan, for it is better to do too much than too little for the first portion of the border, especially when the soil is of such a nature that it does not provide a quick passage through it for the water; and no one, however skilful in this respect, can be quite sure of the behaviour of a soil till he has actually practised on it. In my former treatise is given another reason for using so much rubble, which I cannot do better than quote.

"A Vine border is made to last a century, and it is well to make doubly sure that a stoppage cannot possibly take place under anything like fair management. But this is not by any means the only or the principal reason for placing 8 or 10 inches of rubble under it. The subject of aëration is a very important one, and possibly not fully understood; but this much we know, that the roots of plants cannot live without air; that air follows each supply of water given to the border, and that a system of drainage which allows a great amount of water to be applied necessarily secures abundant aëration. Brickbats and similar material also have some effect on the temperature of the soil above them, not only from the warmth contained in themselves, but from the body of air stored in the interstices, and which, being cut off from direct contact with the atmosphere of the house and that outside, must vary but very slowly. I consider that those who insert drain pipes vertically through their borders to connect the air of the drainage with that of the ordinary atmosphere make a mistake, and neutralise to some extent the good offices of the rubble, because they make it possible for a circulation of air to take place otherwise than through the soil."

If a layer of turf can be obtained for placing over the drainage it will keep all secure for a generation. If no turf is forthcoming then something else must be used as a substitute—say a little litter or a few leaves. If the soil is prevented from falling amongst the drainage at first it will keep all right afterwards unless disturbed.

We will now assume that a suitable soil is at hand agreeing with the conditions I have named, and that it is neither too wet nor too dry. If any of it is in the form of turf that does not break up easily with shifting about it is advisable to chop some of it into pieces not larger than half a brick. First place a layer about a foot thick for the lower portion of the border, and with the upper portion mix some bone dust and half-inch bones, about equal parts of each, say 1 cwt. in all to about 6 cubic yards of soil. The bones should be simply ground, not chemically treated in any way, and should be freed from fleshy matter before grinding, either by boiling or drying.

The soil should be allowed to settle naturally. If the border is outside it must not be allowed to become too wet before planting. The surface is best kept nearly level, or there may be a difficulty in watering. In some situations where the drainage and soil are both good, and only ordinary fruit is required, no elaborate preparation of border is necessary. Simply digging in some bones and bone dust, and giving an occasional top-dressing of manure may be all that is necessary, but it has never been my fortune to have to do with such a soil.—WM. TAYLOR.

(To be continued.)

DOUBLE PRIMULAS.

THE beauty and utility of double and semi-double Primulas for cutting purposes cannot be over-estimated. For those who have to supply flowers during the winter and spring they are invaluable, but I cannot help thinking that their merits are often ignored, the single varieties taking up too much attention. Even for decorative purposes,

such varieties as Earl Beaconsfield, Marchioness of Exeter, Sutton's Double Scarlet, and Improved Carmine are equal to any of the singles.

The best way to increase the true double varieties is by division or cuttings. After the old plants have flowered they may be taken out of the pots and split up into single crowns, each with a few roots. Crock some 4½-inch pots, using loam, leaf mould, sand, and charcoal. Insert the cuttings level with the bottom leaves, plunging the pots either in a propagating case or standing them in a shady position in a warm house, using water sparingly until rooted. Another way is to remove some of the lower leaves from the old plants and cover the surface of the soil with sphagnum moss, which if kept moist will soon induce roots to form. They may then be severed, placed in small pots, and kept growing. As the pots become filled with roots remove to larger sizes until a limit of 6 or 7 inches is reached. The soil for the later pottings should have more loam, with a fair proportion of bonemeal or decayed horse manure added. About the end of May or June remove to a cool frame, watering thrice a week with weak liquid manure. Here the growth becomes solidified, and the plants readily respond to the warmth in the autumn.

The semi-doubles may be raised from seeds sown now and grown quickly, treating the young plants as advised for cuttings. The object of early sowing is to have them well established in their flowering pots before the hot weather comes. The varieties which have done good service for us during the severe weather lately experienced are Earl Beaconsfield, Marchioness of Exeter, Sutton's Double White, Improved Carmine, Rose and Scarlet.—R. P. R.

PRIMULAS PLANTED OUT.

THE system of planting Chinese Primulas is one that is not usually carried out in many gardens, but where extra large plants are required, either for exhibition, home decoration, or other purposes, I can strongly recommend it. During the present season we have had superb specimen plants 2 feet through, and from 15 to 18 inches above the pots. Perhaps a few details concerning the treatment given may be of interest and use to readers.

The seeds were sown in the usual manner during the latter part of February, and the plants when large enough were pricked off into pans, allowing room to place a piece of glass over them, and removed to a shelf in the intermediate house. As soon as they were large enough they were transferred to 3-inch pots, and kept at this period in a cold frame. Instead of placing them in their flowering pots in the usual manner early in June, they were planted out in cool pits, the soil used consisting of rough turfy loam, leaf soil, and decayed cow manure, with a liberal addition of mortar rubble and road grit.

The plants were ready for lifting by the second week in September, an operation that requires to be carefully done in order to insure the least possible check being given. For this potting 7½-inch pots were used, taking care to have them well drained. After potting they were placed in cold pits, kept close and shaded from the sun until they had recovered, and were then given the usual treatment to Primulas grown in the ordinary way. By November they were of the dimensions given above, well-flowered with blooms that more than covered a 5s. piece. We have some double varieties in flower at the present time in pots of the size given above one mass of bloom, treated in the same manner, and anyone who has not tried planting out will, I am sure, be amply satisfied with the results that will be achieved after giving this method a fair trial.—FOREMAN.

AMARYLLISES AT CHELSEA.

AMONGST the many pleasures that come to horticulturists with the spring, one of the most highly appreciated is that afforded by a visit to the Amaryllis house of the celebrated Chelsea Nursery of Messrs. J. Veitch & Sons. Here, arranged in the central bed of a large span-roof structure, one may see a sight not likely to be quickly forgotten. There are hundreds of plants varying in age from two to ten years, all carrying blooms, some of the oldest having two spikes each of three or four blooms; while the juniors have mainly but one flower spike, and with seldom more than two or three flowers. Though one may visit the collection year after year it ever comes with freshness, and is viewed with never diminishing interest and pleasure. Each year one concludes that perfection has been arrived at, only at the succeeding to see a variety such as has not before been observed. It may be the improvement is in colouration, or again it may be in form; but there it is, to be seen and admired by any who like to go.

This season is in no respect inferior to its forerunners. There are the novelties, each with some good point and some with many, and also the old varieties that we have seen in the past, and which are so good that we can but hope that we shall see them again in the future. It is impossible to predict what another year may bring us, but we may rest assured that Mr. Heal, the clever grower and hybridist, will do his utmost to place something on show that will worthily uphold the credit of the house he so well represents. His energy is extraordinary, and he has probably done as much or more than any other man for the advancement of Amaryllis, not alone in quality, but also in popular favour. It is not many years since it was the exception to find any of the better forms of these plants in private gardens, whereas now it is the rule, as but few establishments are without, at any rate, a few. This is as it should be, for the vast majority of the sorts now cultivated are exceedingly handsome, and are undoubtedly worthy of being even more extended

than is the case at present. Their beauty is of the stately order, and finds many admirers. Another point in the favour of Amaryllis is that they are fairly easy to grow. Of course prices vary considerably, ranging from a few shillings the dozen up to several pounds the bulb, but in this respect varieties may be had to meet most purses.

Let us walk round the house and name a few of the most striking forms that are at present in bloom, taking form and colouration as standards and ignoring the question of price entirely. The first to claim attention is one that received a first-class certificate at a recent meeting of the Royal Horticultural Society: it is called *Gorgeous*, and is certainly well named, for the rich crimson-scarlet, handsomely formed blooms are very bright and showy. The recognition accorded by the Society was well merited, as it is one of the best of the current year's novelties. This is the first time it has flowered, and the exceptionally rich colour should insure it a place in good collections for some years to come. In direct contrast as regards colour is a variety named *Cupid*. It is quite distinct from any other, and is certain to receive a goodly share of admiration, as it is so chastely beautiful. The ground colour is white, veined and netted bright rose, while down the centre of each segment there is a band of white, very faintly tinged with green at the base. Not only is the colour good, but the form and substance leaves little to be desired. Another variety somewhat in the same style is *Ilam*, which is pure white striped with rose. The flowers, though perhaps somewhat small, are very charming, and as the bulb is a young one may be considerably better next season.

One of the largest is *Guthrie*, with singularly bright crimson flowers, which if not perfect in form are still very handsome. *Paulina* has a delicate beauty such as usually proves attractive, more especially perhaps to the ladies. The upper segments of the flower, which is of medium size, are bright rose, and the lower, salmon rose centred with white. A flower of great substance and beauty has been designated *Bandon*. The shade is bright rose markings on a white ground, also the same colours being observable in *Chémere*, but the latter is of distinctly better form. *Cawdor*, a deep orange-scarlet-hued kind, of splendid shape and substance, is likely to secure a number of admirers, as also is the more chaste but not more charming *Armoire*, which is white beautifully flushed bright rose. Amongst the older varieties *Perle* is one of the most popular, the flowers being of a peculiarly attractive colour. Size, too, is found in this variety, which has white as a ground colour, with crimson markings. One of the most beautiful of the deeper hue forms is *Dulas*, which is rich velvety-crimson suffused with purple, forming a most pleasing combination.

From a decorative point of view *Marlay* is one of the best, for it combines floriferousness with a good habit and showy bright scarlet-coloured blooms. The hue of *Finedon* is orange-red, the segment being of great size and substance, the upper one on being measured showing a width of 4 inches. *Philomel* is singularly beautiful, though the individual flowers are somewhat small, but as the bulb is only two years old there is every likelihood of marked improvement in this respect next season. This colouration of the flower is peculiar, inasmuch as the upper part is bright rose, while the lower is clear salmon-rose, the base of the flower being white, this shade also being perceptible throughout the whole of the bloom.

Many other varieties of equal merit could be mentioned did space permit, but these must suffice. Let those who are interested in this handsome class of plants pay a visit to Chelsea, and judge for themselves which are the best, and which appeal most forcibly to their individual tastes.—SCRUTATOR.

HERBACEOUS PLANTS.

AMONGST herbaceous plants we find many that will supply us with flowers for cutting, this being a great consideration, for in most establishments cut flowers are in great demand. Another point in their favour is, the greater number being hardy, they require no house room during the winter months. Where summer bedding is practised on a large scale much labour and care is required to keep the plants alive through the winter, and as soon as the new year comes in many must be propagated to secure the required number. Much space that cannot well be spared is consequently requisite to protect these tender bedding plants until the time arrives for transferring them to their summer quarters.

Herbaceous plants are generally grown in gardens in some form or another. One sometimes sees them planted in odd corners; but the better plan is to have them arranged in a systematic manner, so that they may be ornamental as well as useful. Perhaps I ought to say here that in writing these notes I wish to advocate the cultivation of these plants in the kitchen garden, though my remarks may apply equally to the flower garden proper. A well arranged border on each side of a walk running through the centre of the garden is a great improvement in its appearance and one that is often met with. If many tall plants are used the shelter of a west wall is of great service by protecting them from the strong autumnal winds. A convenient arrangement, if somewhat formal, is to plant in lines, having the tallest at the back, and a border 7 or 8 feet wide will require three rows of plants.

A list of suitable plants may be a guide to some, and will include Lilies and other bulbous plants, these giving a brilliancy of colouring not found amongst herbaceous plants proper. For the back row plants of not less than 3 feet in height should be used. These are *Spiraea*

Aruncus, *Bocconia cordata*, *Harpalum rigidum*, *Delphiniums* in variety, *Helianthus multiflorus* and its double variety, *Lilium pardalinum*, *Campanula pyramidalis*, and *Kniphofia Uvaria*. The taller growing Asters, such as *Novæ-Angliæ* and *Purity*, blue and white Lupins, *Pyrethrum uliginosum*, *Papaver orientale*, *Thalictrum flavum*, *Lythrum Salicaria roseum*, *Spiræa palmata*, *Fuchsia coccinea*, *F. Riccartoni*, and Foxgloves.

Suitable plants for the second row will be found in *Aster longifolius*, *A. amellus*, *A. a. bessarabicus*, the two latter are amongst the most useful of Asters; *Dicentra spectabilis*, *Campanula persicifolia*, blue and white forms, *C. grandis*, *C. glomerata*, *Anemone japonica*, and its white variety *Honorine Jobert*, *Agrostemma Flos Jovis*, *Achillea Ptarmica* fl.-pl., *Eryngium amethystinum*, *Galega officinalis*. The latter is a capital plant for cutting, especially the white form, as it lasts such a long time in the cut state if the old blooms are picked off and the water changed every few days. *Hemerocallis flava*, *H. fulva*, *Lychnis chalcedonica*, *L. Haageana*, *Monarda didyma*, *M. purpurea*, *Malva moschata*, *M. m. alba*, *Thalictrum adiantifolium*, *Ranunculus aconitifolius*, *Pyrethrum lacustre*, *Papaver orientale*, *Funkia ovata*, *Gypsophila paniculata*, *Fritillaria imperialis*, *Phlox* and *Pæonies* of sorts. Both the early and late flowering kinds of *Phlox* should be grown, as this will prolong the show of bloom. The English and Spanish *Iris* may be used for this row, also the following Lilies—*L. elegans*, *L. candidum*, *L. chalcedonicum*, *L. Martagon*.

For the front row, *Geum montanum*, *G. coccineum*, *Iberis corifolia*, *Funkia lanceolata marginata*, *Epimedium alpinum*, *E. macranthum*, *Dicentra formosa*, *Doronicum austriacum*, *Campanula carpatia*, *Adonis vernalis*, *Alyssum saxatile compacta*, *Aster alpinus*, *Anemone apennina*, *A. coronaria* of sorts, *Papaver nudicaule*, *Spiræa filipendula* fl.-pl., *Trollius europæus* and varieties (some of these have much larger and darker flowers), *Plumbago Larpentæ*, *Fritillaria meleagris*, *Auriculas*, *Pinks*, *Giant Thrift*, *Pyrethrum roseum*. *Hyacinths*, *Narcissi*, and *Tulips* may be associated with the plants in this row. The dwarf kinds should be planted alternately with those of taller growth.

This list by no means exhausts the number of plants available for a border of this kind, but it will be found to contain some of the best. They will give a variety of colours; their mode of growth is compact, and a greater part will be found useful for cutting. There is also a number of plants of straggling habit, such as *Centaurea montana*, *Potentillas*, *Geraniums*, *Mertensia paniculata* which it would not do to include in the above list; nevertheless, they will be found useful for other positions. Dwarf-growing plants that would soon be overgrown on a border of this kind should have one to themselves, or find a place in the rock garden.

To make the border more gay during the summer months all vacant places should be filled with annuals or other plants. A good selection of the former are *Centaurea cyanus minor*, *Clarkia elegans*, *Marvel of Peru*, *Perilla nankinensis*, *African Marigolds*, *Chrysanthemums* of sorts, *Calliopsis tinctoria*, *Shirley Poppies*, *Sweet Sultan*, and *Zinnias*. These will grow from 18 inches to nearly 3 feet high. Those growing about 1 foot high are *Eschscholtzia*, *Dianthus*, *Bartonia aurea*, *Asters*, *Godetias*, *Linum grandiflorum*, *Phlox Drummondii*, *Mignonette*, *French Marigolds*, *Stocks*, and *Verbenas*. The majority of these being hardy annuals they may be sown where they are to flower.

Another, and a less formal arrangement, may be had by having breaks in the border. Instead of planting in unbroken lines, according to the height of the plants, large clumps of one kind of such plants as *Papaver orientale*, *Galega officinalis*, *Phlox* or Japanese *Anemones* may be planted at intervals along the borders extending the whole width, from front to back, unless the border is wider than the above, in which case the back line should not be broken. These bold clumps produce a fine effect when in bloom.

When planting a herbaceous border vacant places may be left in the back row to be filled during the summer with tall-growing plants and creepers. Maize, Hemp, Castor Oil plants, *Dahlias*, *Canary Creeper*, *Convolvulus*, *Sweet Peas*, and other plants of this class will be found suitable for the purpose. Instead of appropriating the rest of the border to herbaceous plants space may be left in front for planting two or three rows of summer bedding plants. In this arrangement we have a combination of two forms of flower gardening.

It is advisable to have a reserve border where a number of the most useful flowers for cutting may be grown, so that the principal borders may be kept gay. The present is a good time to renovate the borders, and to divide any plants that it may be found necessary to increase. A little manure should be spread over the surface and lightly dug in, this being done in such a way as not to injure the roots of the plants. Strong-rooting kinds, however, and those that quickly spread, may have their roots cut away at a given distance from the stems without injury. This will also prevent them encroaching on their weaker neighbours.

An important point with these plants, and one that is sometimes neglected, is to have them properly staked. This should be done in as informal a manner as possible, and at the right time. When it is delayed until the plants have been broken down by the wind it is impossible to make them look well. What should be aimed at is to stake them in as natural a way as circumstances will allow. Three stakes for each plant of a bushy habit will be required, these being fixed in such a way as to be out of sight as much as possible when the plant has attained its full height.—J. S. UPEX.



ROSES AND THE FROST.

I THINK it would be of general interest to rosarians if you published reports as to the effects of the late winter on Rose plants; and as regards Teas whether half-standards or dwarfs have stood best. We might then be able to form an opinion as to which are the best stocks, not only to yield good flowers, but to withstand the arctic winters with which we are now favoured.

In my (walled-in) garden I have lost nearly all my half-standard Teas, though they were extra well protected with dried fern all the winter; while the dwarfs on Briar cuttings, which were partially earthed up, as well as protected with fern, have taken little harm.

Of maiden Teas on half-standards nearly three-fourths have been killed by frost, notwithstanding each bud having been separately protected.

H.P.'s in the open were so severely cut up by the late spring frost of May last that they are, with few exceptions, all destroyed. I should be glad to learn the experience of others.—ERNEST WILKINS, *Hants*

NOTES ON ROSES.

IT is pleasant to find that Roses have not suffered nearly so much from the winter as the intensity of the cold had led one to expect. The susceptibility of Roses to cold varies considerably, even in the case of varieties belonging to the same section. For example, the common *China* is seldom killed down, while even on a wall *Cramoisie Supérieure* has often to be cut back. *Aimée Vibert*, again, is not nearly so hardy as *Céline Forestier*, and among Teas and Hybrid Perpetuals there is a marked difference. Hybrid *Chinas* are very hardy, and even more so are *Alba* and *Provence* Roses, while *Moss* Roses, again, are rarely frost-bitten.

Among climbing Roses *Félicité Perpetuée*, and *Dundee Rambler* are almost frost-proof. A peculiarity that I have often noticed is that two-year-old shoots are more liable to be frosted than growths of the past year. I have seen these damaged stems left, but it is a policy that cannot be recommended, as they may die during the summer months, and in any case do not flower well. My own plan with these is to cut them clean out and leave nothing but healthy wood.

I had a small rosery to plant last autumn. Most of the plants were in their places early in November, but more were required than had been ordered, and it was quite a month later when the work was completed. Without exception, every one of these late-planted Roses have been killed to the ground, thus emphasising the benefit of early planting.

"The Book of the Rose" came out about the time we were busy finishing the new Rose beds. It was read at once for something new. The only striking matter was that referring to manuring, the force of which, however, I did not quite see; in fact the Roses were planted in beds of pure turfy loam without any addition whatever; but after they had been tied securely to sticks, a thick coating of fresh horse droppings was spread over the whole surface of the ground. The Roses have just been pruned; the top 4 inches of soil has been pointed over and the manure buried to that depth, and I am hopeful these means will give the plants a good start.

The new *Crimson Rambler* as to hardiness has been somewhat disappointing. One plant of 1893 is quite dead, while of several planted last November all are much damaged. *L'Idéal*, again, is not nearly so hardy as *W. A. Richardson*, nor are the *Waltham Climbers* so hardy as *Gloire de Dijon*. Climbing *Victor Verdier* appears to be absolutely hardy. *Cheshunt Hybrid* has also come safely through the winter. That pretty novelty, *Janet's Pride*, is already well budded, and seems as hardy as the common *Briar*. Numbers of *Rosa rugosa* in different positions have all escaped damage, though *Madame G. Bruant* is slightly frost-bitten.—B.

APRIL NOTES.

IT has been frequently stated of late years that it is a mistake to suppose that Tea Roses are tender; as they are, in fact, if grown in the open, as hardy as Hybrid Perpetuals. But I confess it was a surprise to see this statement repeated in April, 1895, as it has been by Mr. Williamson (page 290) on his own and Messrs. Cocker and Prince's authority. The two latter are now no doubt having a good time, for standard Teas must be very much in demand, and, indeed, I have been unable to advise anyone as to where they are to be procured. I think we should like to know how much frost and also how much snow Messrs. Cocker had in February before we take it for granted that their Teas escaped injury from their own inherent virtue and hardiness.

The weather in Scotland is often very different to that in England, and our great trouble was that we had hardly any snow with the exceptional frost. Of the seven Roses named by Mr. Williamson, who, I suppose, had abundance of snow, only two are Teas, and I think but few of us have had H.P.'s seriously injured. A contemporary, which often alludes to the folly of protecting and coddling up such hardy plants as Tea Roses, has dropped that subject for the present; and, with admirable consistency, has been pointing out to its readers the folly of

growing such a half-hardy thing as the common Laurel, when really hardy and prettier shrubs (granted) are to be had.

Standard Teas are the trouble; mine, in all stages, cut-back, maiden, and dormant buds, are "a thing of the past." I have not one left, though they had the best position and all the protection I could give. On the other hand, I do not know that I have lost a single dwarf Tea, on much lower ground, though the protection of dead leaves was, when consolidated, certainly not more than 6 inches deep. Let inventors set their wits to work. Wanted, a scheme for protecting standard Teas from frost, that will not involve a roof, digging them up, or bending them down. I may mention that my Maréchal Niels, pegged down and clamped, are unhurt, though they were quite green and still growing when thus protected.

"Practice" (page 290) is "greatly in favour of spring mulching." We naturally read further to see why he recommends it, and find instead true and useful reasons for condemning it, in that it hinders the most important surface cultivation of the hoe. I am at a loss to understand what can be said in favour of spring mulching from "Practice's" point of view; but an exhibitor of Teas, who finds his blooms are too early for the shows, may sometimes find it useful, as of course it keeps the ground cold, and thus somewhat retards the blooming season.

There is no doubt that "Entomologist" (page 294) is right, and that we shall not find insect pests diminished by the severity of the winter. These things understand the art of winter protection even if we do not, and are well up in the value of earth and dead leaves as protectors. Nay, I fully expect Rose pests to be above the average in numbers. Last year we swept away a great number of the eggs at pruning time on the developed buds at the end of the shoots; but I am afraid that this season the parent moths will find no other buds on which to deposit their eggs save those on which we are depending, and eyes will have to be sharp and finger and thumb busy and industrious if our Roses are to be saved.—W. R. RAILLEM.

NEW ROSES.

(Continued from page 255.)

THE section of Hybrid Tea Roses has not received the numerical addition that we were led by some rosarians in this country to expect. We were told that they were coming in with a rush; that they were in fact "the coming race," and that although the Teas and H.P.'s would not be quite shut out, they would have to take a back seat. Well, there are nine new ones belonging to this section advertised, but even then we have to wait until they have flowered to ascertain whether after all they are not Hybrid Perpetuals sailing under false colours, for such Roses as Caroline Testout might be placed without any difficulty among the Hybrid Perpetuals. A curious comment on the supposed preponderance of this class comes for us from the National Rose Society's schedule for 1895; for there we find that the number of blooms required to be exhibited in a special class of Hybrid Teas is reduced from twelve to nine. Thus, the record since it was attempted to push this class into prominence resulted in 1893 in not one box of blooms being exhibited, and in 1894 one stand; and in 1895, in the hope of inducing more exhibitors, the number of blooms in the stand was reduced. This does not look like the run for popular favour which we were led to anticipate, and from one grower I gather the not very assuring statement with regard to the condition of his Roses, that the Hybrid Teas were the worst hit of all, and he is a favourer of this section. Here, then, is the list.

CHARLOTTE GILLEMOT (Guillot Fils).—A variety remarkable both for shape and odour; in form it is like the *Camellia alba plena* and *alba fimbriata*, with stout petals of a beautiful ivory white, shading off to milk white, one of the finest white Roses in the Hybrid Tea section. Considering the limited number of Roses in this section altogether this addition to description seems somewhat superfluous.

EMIN PACHA (Diögemüller).—A large full flower, similar to Van Houtte in shape, carmine rose in colour. Very free flowering in the autumn.

JOSEPHINE MARAT (Bonnaire).—A large full white flower, the buds lightly striped with rose colour—a good flower for cutting—has obtained two first-class prizes.

MADAME ABEL CHATENAY (Pernet Ducher).—A medium-sized full flower with pointed bud; carmine-rose shaded with deeper rose, and dark at base of petals; a splendid variety, cross between Dr. Grill and Victor Verdier. Obtained a first prize at the Lyons Exhibition of 1894.

ROSOMANE ALIX HUGNIER (Bonnair).—A very large flower perfectly imbricated: a beautiful mother of pearl white colour, salmon shade inside with light rose on the reverse of the petals; obtained two prizes.

SOUVENIR DE MADAME EUGÈNE VERDIER (Pernet Ducher).—A large full globular flower on a firm stalk of a beautiful milk white colour, saffron yellow at the base, other part shaded with darker yellow. Cross between Lady Mary Fitzwilliam and Madame Chélane Guinnoisseau.

SOUVENIR DU PRESIDENT CARNOT (Pernet Ducher).—A large full flower, with a long bud like that of Niphetos; the guard petals large and of a light rose colour, very light in the centre, and shaded with flesh-white at the end of the petals, very free flowering, and perfectly hardy. Obtained a first prize of the Lyons Exhibition of 1894. I am very much surprised at the varieties chosen by these French raisers for hybridising purposes, and almost think there must have been some mistake. I cannot fancy, for instance, selecting as a parent Dr. Grill or Madame Chélane, while the crossing them with

such Roses as Victor Verdier would seem to have been a very doubtful experiment; but they seem to have achieved success at least in the raiser's estimation, and we must only wait for ocular demonstration as to the correctness of their views.—D., Deal.

(To be concluded.)

FRITILLARIA SEWERZOWI.

THIS is an exceedingly interesting plant that is but rarely seen except in really good collections of bulbous plants. When first described it was said to be very small, but now great improvement may be seen in it. *F. Sewerzowi* (fig. 55) is a pleasant relief from the tessellated forms so prevalent in collections. The habit also is most distinct, the



FIG. 55.—FRITILLARIA SEWERZOWI.

bold glaucous foliage and yellowish-green flowers being attractive in groups. It is quite hardy in English gardens, but usually flowers rather too early. The bulbs should be planted in a dryish position in light sandy soil.

ROYAL GARDENERS' ORPHAN FUND.

ON Friday evening, April 5th, the Hotel Metropole was the scene of the seventh annual dinner of the above Society, and we have great pleasure in announcing that it proved to be one of the most successful ever held by this excellent Institution. The amount of benefit conferred on those engaged in horticulture by the above and other societies is very great, and best known to those who have reasons for feeling thankful that such were instituted.

It was in 1887 that the Royal Gardeners' Orphan Fund was established by a handful of horticulturists, who had thought not only for themselves but also for the welfare of their fellow men. The rapidity with which the Society has grown and expanded in so short a time is amazing; to such an extent, in fact that it now takes a place amongst the foremost of those of its kind. The thought of this must be gratifying to its pioneers, and we hope that gardeners all over the kingdom will rally still closer round the banner of these noble institutions, and thus assist them in conferring greater benefits on a deserving class. The chair was taken by H. J. Veitch, Esq., who is always willing to render assistance in the furtherance of good work, and it is superfluous to say that he fulfilled the duties appertaining to the office in a highly creditable manner.

Amongst those present were Sir Trevor Lawrence, Bart., N. N. Sherwood, Esq., and Messrs. J. Baldwin, T. Manning, Owen Thomas, J. H. Veitch, J. G. Veitch, F. C. Ward, G. Reynolds, J. Willard, R. Cannell, J. M. Pollett, H. Hicks, C. Penny, F. Moore, J. Hudson, G. Wythes, G. Featherby, P. Garcia, E. Rochford, J. Kinnell, J. Asbee, P. Kay, W. Poupert, A. G. Weeks, H. B. May, S. W. Segar, H. Turner, W. G. Nutting, J. Alderman, G. May, G. Gordon, W. Gregory, J. Sweet, J. Walker, W. G. Baker, W. H. Bohn, H. Williams, F. Q. Lane,

W. Ireton, G. J. Ingram, J. H. Laing, F. A. Laing, W. J. Brewer, W. Barr, H. Herbst, B. Wynne, D. Gorton, A. G. Baker, E. Hill, W. G. Head, J. Wimsett, A. F. Barron, H. J. Jones, J. Fraser and W. Bates.

After the usual toasts for the Queen and Royal Family had been given, the Chairman arose, amidst applause, to propose that of "The Royal Gardeners' Orphan Fund," and, amidst other well-chosen remarks, said the Fund was originated to aid in the maintenance of the orphans of gardeners, foremen in public, private, and market gardens, and nursery and seed establishments, while rules are provided which enable the Committee to give a certain sum to start the children in the world. The Society was started in 1887 by Mr. Charles Penny, who he was pleased to see there, this being the first annual dinner he had attended since its origin. He (Mr. Penny) was now enjoying honourable retirement, and whenever thoughts of the Gardeners' Orphan Fund crossed his mind, he must feel thankful that he ever started it. In 1888 there were eleven candidates who have received an allowance of nearly £10 per annum since. This speaks wonders for the way in which it has been supported, and it was gratifying to know that at the last meeting the highest aggregate of votes was polled.

That such a fund was necessary was proved by the fact that £832 were annually paid in benefits, and since the commencement the sum of £3237 had been so paid. A pleasing feature in the last balance-sheet showed an investment of £7570, with £825 at the bankers. An average of £1500 per annum had been paid since the Fund was started, which was a wonderful fact, and one that no other institution of so short a duration could boast.

Many people thought a reserve fund was not necessary, but he thought otherwise, as they were virtually pledged to find payments for children until they attained to the age of fourteen, and should the income at any time become less they would have the reserve fund to fall back on. He hoped the reserve fund would increase, and in doing so be a help to those coming forward. As the Secretary and Committee were all honorary the expenses had been less than in any previous year. These by their energy were not only assisting sixty-four children, but the mothers as well.

Many people, he thought, did not realise the meaning of the words widow and orphans. In the case of a gardener being taken ill and dying, his poor widow is left perhaps penniless, heartbroken, and health gone; the Gardeners' Orphan Fund then steps in and says, "We will help you to bring up your family." This Fund helps those who are unable to help themselves, and by doing so obeys the Divine command which tells us to "Comfort the fatherless and widow."

In conclusion, he would remind all present that mercy always brings a double reward, and that the greatest happiness is derived from making others happy, and he would entreat them in the fulness of their hearts to give all they could, through which many could be benefited who at the last election had to be refused owing to lack of funds.

Mr. N. N. Sherwood, in replying to the Chairman, said he had received letters from Sir J. T. D. Llewelyn, Bart., Drs. Masters and Morriss, also Messrs. Dickson, Wright, Dyer, Marshall, Finch, and Sander, regretting their inability to attend. Proceeding, he said all knew the interest taken by Mr. Veitch in all charitable works, especially those connected with gardening, and he trusted the Chairman's excellent speech would be the means of drawing a goodly sum. It must be a great pleasure, he said, to Mr. Penny to see the prosperous condition in which the Gardeners' Orphan Fund is now in, and by energetic working and keeping it before the public it will doubtless develop into as great a Society as the Gardeners' Royal Benevolent Institution. He had learnt that one gentleman had collected the sum of £50 in half-crowns, and he would like to suggest some arrangement be made similar to that in hospitals, by which a person after subscribing a certain sum has a cot set apart for the use of anyone he likes to recommend. If something like this could be instituted in this Society he would be happy to be the first to make a presentation. The Chairman, he said, had graphically described instances in which the Gardeners' Orphan Fund was spreading its good work, and he trusted it would have the support of all interested in gardening, and so grow and become one of the greatest societies in the kingdom.

Mr. J. Assbee, in giving the toast of "Gardeners and Gardening," remarked that it was one which embraced a very wide area. There were amateur gardeners, gentlemen's gardeners, and market and nursery gardeners. In speaking more particularly of the three latter, he said that gardeners, as a body of men who have great interest in their work, besides being men of many ideas and wide knowledge, intelligent and deserving. The remuneration, he said, received by gardeners in many instances is not sufficient for them to make provision for their wives and families, and it was to help such that the Fund had been established, and with wider spread of feeling he hoped it would prosper still more. With respect to the second part of the toast—viz., "Gardening," almost everyone loves gardening, whether it is on an elaborate scale, or even on a much smaller in a London window, and the keen love which is held for flowers may be seen in the way in which even a small child will run the risk of being run over in the street in order to become the possessor of some fallen blossom. He felt the toast of "Gardeners and Gardening" was one much too wide for him to thoroughly grapple with; but in giving it he would couple with it the name of Mr. Owen Thomas, the accomplished gardener of Her Majesty the Queen.

Mr. Owen Thomas in reply, said nothing had made more progress during recent years than horticulture, and in looking over a period of thirty years one could not fail to notice the extent to which methods and

systems had changed. Flowers in those days were not grown to be cut so much as they are now, not that he had anything to say against this, as it gave employment to a great many. In speaking of gardeners he regretted the recent death of several worthy horticulturists. There was Mr. William Thomson, who had revolutionised the system of Grape-growing for market, and Mr. Thos. Baines, verily a king amongst gardeners; and lastly, Mr. Wm. Dean, one of the most kind and amiable of men, and one of the best florists who ever lived. In speaking of the future of gardening, he said young gardeners of the present day were a class of men worthy of the highest praise. With respect to the Gardeners' Orphan Fund he said the chief power of the Society was centered in London, and he thought it would be a good idea to form centres in different parts of the country by which the Fund might be much encouraged.

At this point the result of subscriptions given at the table was read by Mr. Brian Wynne, and amounted to a substantial sum, particulars of which are appended. Per Harry J. Veitch, Chairman.—Harry J. Veitch, £52 10s.; J. Veitch & Sons, £26 5s.; Mrs. Harry J. Veitch, £10 10s.; J. H. Veitch, £10 10s.; J. Gould Veitch, £10 10s.—£110 5s. H. J. Jones, Lewisham, £55 1s. 6d.; Covent Garden Table, per J. Assbee, £52 10s.; Wills & Segar, £40; J. Reynolds (including Leopold de Rothschild, £20, and Alfred de Rothschild, £10 10s.), £37 11s.; The Hortus Lodge, £35 9s.; N. N. Sherwood, £35 10s.; Baron Schöler, £30; Sir Julian Goldsmid, Bart., M.P., £21; Lord Rothschild, £25; N. M. Rothschild, £25; E. Hill, Tring, £20; W. Robinson ("The Garden"), £15 15s.; Arnold Moss (Wrench & Sons), £15 15s.; Ferdinand de Rothschild, M.P., £10; Sir Trevor Lawrence, Bart., M.P., £10 10s.; T. B. Haywood, £10 10s.; M. B. Head, £10; J. R. Stirling, £8 16s. 6d.; T. C. Ward, £7 2s. 6d.; J. Willard, £6 13s. 6d.; R. P. Glendinning, £5 15s. 6d.; John Laing & Sons, £5 10s.; Martin J. Sutton, £5 5s.; Anthony Waterer, junr., £5 5s.; A. W. Sutton, £5; Sir Donald Currie, £5; T. Statter, £5; Proprietors of "Amateur Gardening" and "Gardeners' Magazine," £5; G. A. Dickson, £5; W. G. Head, £5 5s.; H. Hartley, £5 5s.; A. W. G. Weeks, £5 5s.; H. J. Wimsett, £5 5s.; H. Hicks, £5 5s.; A. H. Smee, £5 5s.; E. Gilbert, £5 14s.; T. Turton, £3 15s. 6d.; H. J. Clayton, £3 10s.; W. J. Nutting, £3 3s.; W. Icton, £3 3s.; J. F. McLeod, £3 0s. 6d.; H. J. Cutbush, £2 7s.; —Page, £2 2s.; H. Herbst, £2 2s.; P. Crowley, £2 2s.; R. & G. Cuthbert, £2 2s.; C. E. Osman, £2 2s.; T. Manning, £2 2s.; W. J. Brewer, £2 17s.; J. T. Bennett Poë, £2; P. E. Kay, £2 2s.; G. May, £2 2s.; Laundry, Son, & Kedge, £2 2s.; W. Bates, £2 1s.; W. Roupell, £1 14s. 6d.; J. Phillips (Edinburgh), £1 4s.; W. Smyth (Basing), £1 7s.; and further sums of £1 1s. and under, making a total of upwards of £800.

Mr. W. G. Weeks, in proposing the health of the Chairman, said it was to him a pleasure, marred to a certain extent, as he could not do full justice to the toast, and what he said was no mere figure of speech but the outpouring of heartfelt thanks. The name of H. J. Veitch, Esq., said he, carried with it a glow of goodness to anyone to whom it was mentioned, for in spite of the many duties connected with the firm he always found time to attend to the wants of the aged and suffering in the gardening world, which may be seen by his munificence and generosity in regard to the Gardeners' Orphan Fund and other societies, and anything further that he might say would, he thought, be quite superfluous.

The Chairman, in thanking those present for the kind manner in which they had drunk his health, said he felt he was a friend amongst friends, and he should like to thank Mr. Barron for the excellent manner in which he conducted the duties of Secretary, and also the Stewards for the good list of subscriptions they had succeeded in obtaining, coupling with the latter the name of Mr. Chas. Penny.

Mr. Penny, in reply, said he could not tell them what he felt. He was so pleased and gratified at the success of the Society, which, from being a cutting a few years ago, had now developed into a fine plant. He regretted the fact that more gardeners did not subscribe to the Society, as he thought every gardener might do so. He also trusted the horticultural press would do all they could to further the interests of the Society. He would also like to tender especial thanks to Mr. Barron for his services, and in conclusion said his early expectations had been more than accomplished.

Mr. A. F. Barron, in a few words, expressed his thanks, and said he should always do his best for the Society.

Mr. Harry Turner gave the toast of "The Horticultural Press," and said the Society had derived much benefit through the reports of meetings and events that appeared in the pages. Mr. George Gordon replied, and thanked all present for the generous manner in which the toast had been received; and, amongst other well chosen remarks, said members of the Press would always endeavour to do what they could for the gardening fraternity.

Selections of music, vocal and instrumental, were supplied by Mr. Herbert Schartau and others.

ROYAL HORTICULTURAL SOCIETY.

APRIL 9TH.

THIS meeting at the Drill Hall was the best that has been held this year. The display of flowers was an exceptionally brilliant one, and was comprised of a more extended selection than has been the case at previous meetings. Orchids were not quite so numerous, but as a rule the quality was excellent. The exhibits for the Floral Committee made by far the greatest show, and in this section some plants of *Streptosolon*

(*Browallia*) *Jamesoni*, staged by J. T. Bennett Poë, Esq., of remarkable excellence.

FRUIT COMMITTEE.—Present: P. Crowley, Esq. (in the chair); with Rev. W. Wilks, and Messrs. T. F. Rivers, H. J. Pearson, G. W. Cummins, J. Cheal, T. J. Saltmarsh, J. Smith, G. Norman, H. Balderson, G. Wythes, J. Hudson, T. Glen, G. Goldsmith, R. W. Farr, G. Reynolds, G. T. Miles, Robert Fyfe, A. Dean, and J. Wright.

The season of the year has not arrived for other than small consignments of either fruit or vegetables to be sent for examination by the Committee, and on the present occasion Mr. G. Wythes, the energetic gardener at Syon, was the chief contributor of both. The collection of vegetables that he staged, and for which a silver Knightian medal was unanimously accorded, was, both as regards variety and suitability for the purpose for which the different kinds were grown, well worthy of the recognition bestowed during the present season of comparative scarcity of garden produce. Included in the collection were Sharpe's Victor Potatoes, Ne Plus Ultra Beans, Asparagus, Seakale, Mushrooms, Cucumbers, Cauliflowers, young Turnips, various Kales, Coleworts, Spinach, Leeks, and Chicory—not bulky samples, but just such as are welcomed both in the kitchen and dining room. Special attention was drawn to several plants of the *Victoria* Spinach, which has been found to stand the winter well. The plants were very sturdy with stout leaves, and the variety was recommended to be grown with the *Viroflay* and others at Chiswick.

Mr. Wythes also sent a box of *La Grosse Sucrée* Strawberries, fine fruits, splendidly coloured, and a cultural commendation was awarded; he also sent a very good sample of Royal Sovereign.

Mr. G. Goldsmith, The Gardens, Leonardslee, Horsham, sent a dish of Apples named *Burfield*—medium-sized, symmetrical fruits, prevailing colour dull red, heavily streaked with darker red—a showy fruit, but had lost its crispness. No award was made; but one of the members thought it might make a good “shop” Apple, which is not altogether a bad recommendation in these commercial days.

FLORAL COMMITTEE.—Present: J. Fraser, Esq. (in the chair); with Messrs. J. Laing, S. A. de Graaff, C. T. Drury, H. Herbst, R. Dean, R. Owen, G. Stevens, R. B. Lowe, J. Jennings, W. Bain, J. D. Pawle, J. W. Barr, C. E. Pearson, E. Beckett, C. Noble, C. T. Bennett Poë, J. Walker, C. E. Shea, E. Mawley, G. Paul, and C. J. Salter.

Messrs. Barr & Son, Covent Garden, were again in evidence with a collection of bulbous and hardy herbaceous flowers, consisting mainly of cut blooms of *Narcissus* *Horsefieldi*, *Emperor*, *obvallaris*, *princeps*, *Thomas Moore*, *Queen Bess*, *Henry Irving*, *Golden Spur*, *Ard Righ* and *rugilobus*; *Anemone* *pulsatilla* and *fulgens*, *Primula* *cashmeriana*, *Chionodoxa* *sardensis*, *Scilla* *sibirica*, *Helleborus* *punctatus* and Dr. Hogg, *Chionodoxa* *Lucilia*, *Megasea* *ligulata* *rosea*, *Sisyrinchium* *grandiflorum* *album*, and *Fritillaria* *amoena* *rubra*, together with many others (silver Banksian medal). A collection of mixed flower and foliage plants was staged by Messrs. John Laing & Sons, Forest Hill, and amongst others were noticed *Clivias* *Vesuvius* and *Duchess of York*, *Caladiums* *Mrs. Harry Veitch* and *Comtesse de Maille*, *Calla* *Little Gem*, *Epiphyllum* *Makoyanum*, *Begonias* *floribunda* *compacta* and *Bruanti*, together with *Azaleas*, *Anthuriums*, *Ferns*, *Palms*, *Crotons*, *Dracanas*, *Isolepis* *gracilis*, and hardy herbaceous plants (silver Flora medal). Mr. Fitt, gardener to Earl Cowper, Panshanger, exhibited magnificent trusses of *Beaumontia* *grandiflora* *superba*, together with flowers of *Habrothamnus* *scabra* and *Gloneria* *jasminiflora*, and also a large flower spike of *Cordyline* *australis*, for which a vote of thanks was given.

Messrs. John Pead & Sons, Norwood, staged a compact group of foliage plants, containing sturdy examples of *Dracanas* *Elizabethæ*, *Madame F. Bergmann*, *Barroni*, *Lord Wolseley*, *Jamesi*, *pendula*, *terminalis* *alba*, *Rossi*, *Lindeni*, *Spinksi*, *superba*, *Vicomtesse de Belevale*, and *Frederica*, and others, all tastefully arranged with *Palms*, *Ferns*, and *Isolepis* *gracilis* (silver Banksian medal). A large and varied group of hardy herbaceous plants and cut flowers exhibited by Messrs. Thomas S. Ware, Hale Farm Nurseries, Tottenham, attracted much attention. Amongst others were noticed *Draba* *elongata*, *Megasea* *crassifolia*, *Primula* *viscosa* *nivalis*, *denticulata* *lilacina*, *Clusiana*, *denticulata* *alba*, *cashmeriana*, and *rosea*; *Saxifragas* *oppositifolia*, *Boydii*, *apiculata*, *Burseriana*, and *sancta*; *Narcissus* *reflexus* and *Bulbocodium*; *Hepatica* *triloba* *cœrulea*; *Trillium* *grandiflorum*, *Chionodoxa* *gigantea*, *Iberis* *saxatilis*, *Cypripedium* *calceolus*, *Androsace* *carnea*, *Puschkinia* *libanotica*, *Fritillaria* *meleagris* *alba*, and *Gaultheria* *procumbens* (silver Flora medal).

Clivias were staged in fine form by Messrs. B. S. Williams & Son, Upper Holloway, amongst other varieties being *Holloway Beauty*, *Surprise*, *Baroness Schröder*, *Prince of Orange*, *Madame Van Houtte*, and *Aurantiaca*. A varied group of *Amaryllis* was also staged by the same firm, containing fine flowers of *Emperor William*, *Dr. Masters*, *Curiosity*, *Ophelia*, *Distinction*, *Lord Salisbury*, *Marshalli*, *Lady Wimborne*, *Lothair*, and others (silver Banksian medal). A small but superb group of *Amaryllis* was staged by Messrs. Jas. Veitch & Sons, Chelsea, consisting of excellent flowers of *Doris*, *Chimère*, *Latona*, *Cytherea*, *Fresca*, and *Czarina*. The same firm also staged *Loripetalum* *chinense*, *Stachyurus* *præcox*, and well flowered plants of *Rhododendron* *Early Gem*, dug from the open ground.

Mr. Bain, gardener to Sir Trevor Lawrence, Burford Lodge, exhibited a pan of the elegant *Primula* *Forbesi*, and also plants of *Scutellaria* *Mocciniana*, together with a fine and varied collection of *Anthuriums*, amongst other varieties being *compactum*, *Rothschildianum* *superbum*, *Rothschildianum* *maximum*, *Maria Theresa*,

album *maximum*, *Archduc Joseph*, *Lawrenceanum*, *Andreanum*, *burfordiense*, and *sanguineum*, together with many fine seedlings. A large well-bloomed specimen of that peculiar plant *Ataccia* *cristata* was also included—the finest ever exhibited (silver Flora medal). Messrs. Sander and Co., St. Albans, staged plants of *Hippeastrum* *splendens*, also of *Spathoglottis* *plicata* and *aurea*. Mr. A. J. Reid, gardener to F. C. Carr, Esq., Farnham Chase, Slough, staged fine *Arum* *Lily* blooms. Plants of *Tree* *Carnation* *Mrs. Hamlet Riley* were sent by Mr. Chas. Turner, Royal Nurseries, Slough. Mr. Wm. Slogrove, gardener to Mrs. Crawford, sent a group of *Violet* plants thickly covered with bloom, of varieties *Swanley White*, *Marie Louise*, and *Neapolitan*.

Cannas were shown in excellent form by Messrs. Paul & Son, Cheshunt, the group containing varieties *Mrs. Tasker*, *Cheshunt Yellow*, *Comet*, *Antoine Barton*, and *Alphonse Bouvier*. *Amaryllises* were also included in the firm's exhibit, *Mrs. H. Wood*, *Venosa*, and *Sunlight* being especially prominent. A choice selection of hardy flowers are worthy of mention, and consisted mainly of well flowered plants of *Daphne* *Mezereum*, *Paul's Snow White*, *Pulmonaria* *saccharata*, *Saxifragas* *oppositifolia* *alba*, *luteo-purpurea*, *hypnoides* *variegata*, *Boydii* *alba*, *luteo-purpurea* *Mayli* and *sancta*, *Hepatica* *triloba*, *Erica* *herbacea* *carnea*, *Megasea* *Stracheyi*, *Anemone* *pulsatilla*, and *Primulas* *nivalis*, and *Forbesi*. The same firm also sent a fine plant of *Araucaria* *imbricata* *platifolia* in a pot (silver Banksian medal). Mr. Frank Cant, Colchester, staged an exceedingly fine collection of *Roses*, the flowers being large and of excellent form. Amongst others were noticed *Catherine Mermet*, *Maréchal Niel*, *Anna Ollivier*, *Jules Finger*, *Madame Hoste*, *Bridesmaid*, *Ernest Metz*, *May Rivers*, *Niphetos*, *Marie Van Houtte*, *Caroline Kuster*, and *Souvenir d'un Ami* (silver-gilt Flora medal). An excellent group of cut *Roses* came from Mr. George Mount, Rose Nurseries, Canterbury, containing, among others, fine blooms of *Catherine Mermet*, *Maréchal Niel*, *Niphetos*, *The Bride*, *Anna Ollivier*, and *Souvenir d'Elise* (silver Flora medal).

In a group of plants exhibited by J. T. Bennett Poë, Esq., Holmwood, Cheshunt, were large well-bloomed plants of *Streptosolon* *Jamesoni*. These are deserving of a special word of praise, and were said to be the finest ever produced—3 feet high and nearly as much in diameter, covered with brilliant trusses (silver Flora medal). A small group of seedling *Daffodil* flowers was staged by Rev. G. H. Engleheart, Andover.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair); Dr. Masters, with Messrs. J. O'Brien, De B. Crawshay, H. M. Pollett, H. Ballantine, W. H. White, H. J. Chapman, J. Jaques, E. Hill, S. Courtauld, J. Douglas, W. Cobb, T. W. Bond, W. B. Latham, A. H. Smee, and Fred Hardy.

A charming exhibit of Orchids was arranged by Messrs. J. Veitch and Sons, Chelsea, and comprised some bright and beautiful forms. Amongst the most noticeable were *Cattleya* *Lawrenceana*, *C. Schröderæ*, forms of *C. Trianae*, *Odontoglossum* *Ruckerianum*, *O. Pescatorei*, *O. Wilckeanum*, *Dendrobium* *Farmeri* *roseum*, *D. crassinode*, *Cymbidium* *Lowianum*, and *Cypripediums* in variety (silver Banksian medal).

Messrs. F. Sander & Co., St. Albans, staged a beautiful collection of Orchids, in which numerous excellent kinds were perceptible. *Phaius* *Sanderianus*, *Odontoglossum* *triumphans*, *O. crispum*, *Cattleya* *Schröderæ*, *Dendrobium* *Auguste Victoria*, *Cœlogyne* *lentiginosa*, *Angræcum* *Sanderianum*, and *Eulophiella* *Elisabethæ* were some of the best (silver Banksian medal).

F. Hardy, Esq., Tyntesfield, Ashton-on-Mersey, staged a fine example of *Odontoglossum* *polyxanthum*, Hardy's variety, and De B. Crawshay, Esq., Sevenoaks, a plant of *Odontoglossum* *triumphans* *Lionel Crawshay*, which was accorded a first-class certificate and will be found described below and figured on page 307. Mr. R. Johnson, gardener to T. Statter, Esq., Stand Hall, Manchester, showed plants of *Cattleya* *Mendeli* *Alexandra*, *C. Schröderæ* *splendens*, a very beautiful form, and *Lælio-Cattleya* *Pallis* *superba*, an exceptionally handsome bigeneric hybrid.

A group of Orchids was arranged by Mr. Aldous, gardener to H. J. Pitt, Esq., Stamford Hill. Very prominent were *Cattleya* *Trianae*, *Dendrobium* *thyrsiflorum*, *Angræcum* *sequepedale*, *Vanda* *suavis*, and forms of *Miltonia* *Roezli* (silver Banksian medal). Mr. G. W. Cummins, gardener to A. H. Smee, Esq., The Grange, Wallington, staged a plant of *Cymbidium* *Lowianum* *viride*, carrying a handsome spike of pale green coloured flowers.

A magnificent plant of *Cattleya* *Lawrenceana* came from Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, as also did *Cypripedium* *Lawrenceanum*, *Epidendrum* *Endresio-Wallisi*, *Eulophiella* *Elisabethæ*, *Odontoglossum* *asperum* *violaceum*, *Masdevallia* *leontoglossa*, and *Miltonia* *Bleuana* *nobilior*, all in excellent form (silver Banksian medal). Messrs. W. L. Lewis & Co, Southgate, showed a small collection of Orchids, composed of *Cattleyas*, *Odontoglossums*, *Cypripediums*, and others in variety (silver Banksian medal).

Two forms of *Cattleya* *Trianae* were staged by Mr. G. Downs, Farnham, and a cultural commendation was awarded to Mr. H. Adams, gardener to C. J. Raphael, Esq., Castle Hill, Englefield Green, for a splendidly flowered spike of *Eulophiella* *Elisabethæ*. From the Royal Botanic Gardens, Glasnevin, came specimens of *Cœlogyne* *lactea*, *Phaius* *assamicus*, and *Masdevallia* *ladipunda*. Baron Schröder, The Dell, Egham, showed a very small collection of Orchids, comprising *Dendrobium* *Cybele* and two forms of *Cattleyas*. J. T. Bennett-Poë, Esq., Holmwood, Cheshunt, showed fine plants of *Cymbidium* *eburneum* and *Lowianum*, and *Dendrobium* *Jamesianum*.

Mr. E. Hill, gardener to the Right Hon. Lord de Rothschild, staged a few Orchids, comprising *Cattleya* *guttata* *Prinzi*, *Lælia* *flava* *var. aurantiaca* (award of merit), and others.

CERTIFICATES AND AWARDS OF MERIT.

Amaryllis Chimere (J. Veitch & Sons).—The segments of this superb *Amaryllis* are of great size, the colour being whitish green with bright rose marking on the upper portion of the bloom (award of merit).

Amaryllis Doris (J. Veitch & Sons).—The flowers of this variety are of handsome form and substance, though somewhat small. The colour is a very rich deep velvety crimson (award of merit).

Anthurium compactum (W. Bain).—This is a very charming form of dwarf habit. The spathe is white, spotted and patched with bright scarlet (award of merit).

Ataccia cristata (W. Bain).—This is a very old but still rare plant of botanical interest. The flowers are chocolate brown in colour, borne in umbels, and are of very curious formation (first-class certificate).

Lælia flava aurantiaca (E. Hill).—The blooms of this Orchid are of a very rich orange shade, the throat being sparsely striped crimson (award of merit).

Odontoglossum triumphans, *Lionel Crawshay* (D^r B. Crawshay).—This is an exceedingly handsome form of the type. The blooms are large and very rich in colour. The sepals are clear yellow with bright brown patches and a yellow margin, the petals, which are broad and of great substance, being of the same rich colour. The lip is a fine feature. It has a yellow fimbriated margin, with a broad reddish brown patch and a canary yellow throat. This variety, which received the only first-class certificate awarded to an Orchid on the occasion, was promptly sketched by our artist for the illustration (fig. 53, page 307).

Saxifraga Boydii alba (Paul & Son).—This beautiful little alpine Saxifrage has pure white blooms of good size (award of merit).

LIVERPOOL SPRING SHOW.

AFTER a discontinuance for a season, the spring show was again revived in St. George's Hall. The show, for beauty and quality, was pronounced by competent judges a long way ahead of either Preston or the Crystal Palace. Professional gardeners contributed handsome specimens, the majority of classes being well contested, whilst the trade assisted in every possible way, the greatest feature amongst the latter being the gorgeous *Amaryllis* staged by Messrs. R. P. Ker & Sons, Aigburth Nursery, which secured a special gold medal.

The Orchids were splendid, showing great progress, most noticeable being a handsome *Dendrobium Ainsworthii*, carrying 2400 flowers, staged by Mr. J. Bracegirdle, gardener to the Lord Mayor of Liverpool. Hyacinths and Tulips were admirably grown, the Judges having the greatest difficulty in awarding the prizes. The only weak feature in the show was the Azaleas, although a few grand specimens were brought. Boxes of Roses arranged for effect were also a great feature, more particularly the first one, put up by Mr. J. Carling, gardener to Mrs. Cope, Dove Park, Woolton.

For a table of miscellaneous plants arranged for effect Mr. J. Bracegirdle was the only exhibitor, but a most pleasing arrangement resulted. The centre contained a small Cocos, and the four corners being small Crotons. These were banked with Maidenhair Ferns, Tulips and Orchids being used as dot plants. Three competed for ten pots of hardy, herbaceous, and bulbous plants Mr. J. Grant, gardener to W. S. Gladstone, Esq., Thornlea, Aigburth, being an easy first, Mr. T. Hitchman, gardener to Arthur Earle, Esq., Childwall Lodge, being second. Mr. Grant also won with six pots of Daffodils, certainly amongst the best ever staged in the Hall, Empress, Horsefieldi, Henry Irving, and Princeps being conspicuous, Mr. W. Kneale, gardener to Lieut.-Col. Gaskell, Woolton, being a fine second. For eighteen Hyacinths Mr. T. Wilson, gardener to O. H. Williams, Esq., succeeded in winning with a very even stand. The best were Vuurbaak, Lord Percy, Grand Maître, The Sultan, Lady Derby, and La Deuil. Mr. C. Waring, gardener to Mrs. Jno. Aiken, Grassendale, was a good second, with Mr. T. Hitchman a close third. For twelve the first and second as in the preceding class won, Mr. Jas. Agnew, gardener to Mrs. Watts, Grassendale, winning for six.

It would be idle to criticise the Tulips, so even were they, Mr. James Grant winning with a good twelve; Mr. Holford, gardener to C. MacIver, Esq., Heswall, being second. For six doubles and six singles, Mr. J. Williams, gardener to C. J. Procter, Esq., Boscobel, Cheshire, secured the prizes with very fresh examples. *Amaryllis* were most handsomely shown by Mr. T. Johnson, gardener to G. W. Moss, Esq., who staged massive and shapely flowers. Considering the adverse season, stove and greenhouse plants were in good condition, Mr. B. Cromwell, gardener to J. Sutton Timmins, Esq., Cleveley, Allerton, being first with a capital *Anthurium Scherzerianum*, well-flowered *Dendrobium nobile*, and a charming white Azalea, two fine Palms, and a well-coloured Croton completing the six: Mr. R. Pinnington, gardener to Mrs. Banner, being second. Mr. Cromwell was also first for the most beautiful six forced hardy plants ever seen at Liverpool. Two charming Clematis, Mrs. Quilter and Sir Garnet Wolseley, a fine Tree Pæony, Charles Dickens Rhododendron, and Grace Darling Rose.

In addition to the fine *Dendrobium Ainsworthii* previously mentioned Mr. Bracegirdle had a very healthy *Angræcum sesquipedale* carrying four spikes and ten massive flowers for first prize in the class for three Orchids; Mr. E. Taylor, gardener to E. Pryor, Esq., Aigburth, having a good *Dendrobium Wardianum* in the second prize stand. The special cool Orchid prize kindly given by Messrs. Jas. Cowan & Co., Garston, was won by Mr. T. Wilson with capital plants of *Lycaste Skinneri* and *Odontoglossum triumphans*. Azalea prizes for three and

one, four and one Azalea mollis, and six pots of Freesias were all taken by Mr. J. Kelly, gardener to R. Singlehurst, Esq., Aigburth; Mr. Bounds, gardener to C. L. Jones, Esq., Aigburth, won with table plants, four Azaleas in 8-inch pots, and one greenhouse Rhododendron; Mr. T. Aikers, gardener to W. B. Bowring, Esq., was first with three Callas, two pots Mignonette, and one Rhododendron; whilst Mr. Lewis, gardener to S. Neal, Esq., Aigburth, again showed his superior skill by taking the first prizes for Cyclamen, Cinerarias, and Primulas; Mr. Heaton winning with two forced hardy plants.

Certificates were granted to Dicksons, Limited, for a grand display of Narcissi, the admiration of all visitors; Messrs. Cowan & Co., Garston; and Charlesworth & Co., Bradford, for a varied and choice display of Orchids; Messrs. T. Davies & Co., Wavertree, for a handsome contribution of miscellaneous plants and bulbs; Mr. H. Middlehurst, Manchester Street, Liverpool, for Narcissi in variety and compact Mignonette; Messrs. R. P. Ker & Sons for Azalea mollis (Kostar's variety) and Clivias; Mr. W. Mason, Birkenhead, for plants and Edwardian ware; Messrs. W. J. Robertson & Co. for Palms; Mr. W. Kipps for fruits of La Grosse Sucrée Strawberries; and last, but not least, a special prize for four bunches Black Alicante Grapes in splendid preservation, and an excellent basket of La Grosse Sucrée Strawberries, exhibited by Mr. T. Elsworthy, gardener to A. R. Gladstone, Esq., Court Hey, Broad Green.—R. P. R.



FRUIT FORCING.

Pines.—*Early-started Fruiting Plants.*—The Queen, Enville, and Providence plants started early in the year are fast approaching the flowering period, and will be benefited by an occasional syringing at the time of closing the house, but it must be very light, and when the flowers open should not be practised. As the foliage is as yet tender it will be desirable in the case of houses with large panes of glass to afford a slight shading for an hour or two in the hottest part of the day until the foliage becomes inured to the sun's influence. When the flowering is over the fruit will advance rapidly if the roots are in good condition, and ample supplies of weak tepid liquid manure given as required. Attend to ventilating early in the morning, commencing when the temperature is at 80° and closing at 85° with sun heat. Keep the atmosphere moist by damping whenever the paths and other surfaces become dry, especially at closing time or early in the afternoon. The bottom heat should be kept steady at 80° to 90°, and the night temperature 70°, with 75° by day artificially. As soon as the suckers appear remove all except one to each plant.

Vines.—*For Early Work.*—Vines in pots afford creditable crops of early Grapes. The Vines for this purpose should now be in the pots they are required to fruit in, and have the growths trained as near to the glass as possible without touching, so as to secure thoroughly ripened wood. Better results, however, are had by planting the Vines in beds or borders after the method adopted with Cucumbers or Melons. A lean-to or three-quarters span-roof house, facing due south, answers perfectly if it has a border about 3 feet wide along the front, and 18 inches in depth, with hot-water pipes below for affording bottom heat. These may be disposed in a chamber or so as to allow of 6 inches depth of rubble over them. The Vines intended for fruiting next year should be strong cut-backs, which have been forwarded in another structure, and attained the growth such as that of those transferred to the largest size of pots for fruiting. If they have made considerable progress, as they will by this time, they should be turned out with the ball entire, firming the soil well about them. Turfy loam with an admixture of about one-sixth of old mortar rubbish forms a suitable compost, which need not be more than 15 inches in depth, and only sufficient used to form a hillock for planting in and breadth enough for watering. Fresh soil must be added to the sides as the roots protrude, the object being to keep the Vines perfectly under control. The canes being trained near the glass will make short-jointed wood. Stop the laterals at the first leaf, and the sub-laterals at one joint, and to every subsequent joint as made. Under this treatment the growths will be sturdy, food largely stored in the canes, also in the well-developed buds, and the wood ripen early and thoroughly. If well managed they will make canes like walking-sticks with eyes like nuts, and being as much under control as Vines in pots they can be matured early and given a rest, so as to be ready for a start by the early part of November. By this plan the root action is considerably extended, and this admits of correspondingly large feeding, the crops finishing better than those of Vines in pots.

Grapes Ripening.—Vines in pots that have the Grapes ripe or advanced in ripening require very moderate supplies of water at the roots. To insure a full swelling on planted-out Vines inside borders should have a thorough supply of water, ventilating early on fine days to allow excessive moisture to escape. A full crop of early Grapes is a great strain on the energies of the Vine, and through it in early forcing perfection in colour is not always attainable. Much may, however, be done by a liberal and constant supply of warm, rather dry air, combined with a comparatively low (60° to 65°) night temperature, but that in

the daytime must be well maintained at 70° to 75° from fire heat, and 80° to 85° with sun heat. Red spider usually makes its appearance on early forced Vines about the time of the Grapes commencing colouring and the small colonies on the under side of the leaves must be removed with a sponge moistened with a solution of soft soap, 2 ozs. to a gallon of water. As a preventive measure the pipes may be coated with a mixture of sulphur and skim milk. Care, however, must be taken not to overdo it or the fumes will act injuriously on the skin of the berries and spoil their appearance, the sulphur vapour being more injurious to the skin of the white than black Grapes, Frontiguans and Muscat of Alexandria suffering most.

Succession Houses.—Stop and regulate laterals so as to secure an even spread of foliage without crowding. Where there is not room for extension it is unwise to allow them to grow considerably, so as to necessitate a large reduction of foliage at one time, as this results in a check, which often induces shanking at a later period. Attend to thinning the bunches and berries, under rather than over-cropping the Vines. Make sure that the borders have abundance of water. Vines swelling their fruit should have a moist atmosphere, securing this by damping the paths two or three times a day, and if liquid manure be used at the latest sprinkling it will improve the Vines and act as a check to red spider. Stable and cowhouse draining diluted down to the colour of mild ale, or an ounce of guano to a gallon of water is sufficiently strong for damping with, not using more than a 4-gallon watering-canful to 30½ square yards.

Late Vines.—Disbud and tie out these as they require it. Close the houses early in the afternoon with sun heat and ample atmospheric moisture by frequently damping available surfaces. Vines that were started early in March are making rapid progress, and must receive every encouragement, but avoid hurrying their growth by a close atmosphere and high temperature, especially at night, ventilating judiciously early in the day so as to secure well formed, thick, leathery leaves.

Young Vines.—Last year's planted canes will now be breaking naturally, and when the growths are fairly on the move a little fire heat will prove beneficial, especially on cold days. When the growths are about half an inch long, gradually remove those not required, leaving the shoots for bearing or forming the side growths or spurs not closer than 15 to 18 inches on each side of the cane. If fruit is taken crop lightly. One, or at most two bunches is as much as Vines in the first year of fruiting should be allowed to bear, but supernumeraries may be weighted with as much fruit as there is a prospect of their bringing to maturity.

Strawberries in Pots.—The season of forced Strawberries is, or soon will be, at its height, and the labour of watering at its maximum. Examine the plants at least three times a day in bright weather, and whenever a plant needs water give a thorough supply. East winds are usually very prevalent in spring time, and air must be cautiously admitted, as the fruit is liable to become brown and cease swelling when exposed in its early stages to currents of cold, dry air. The plants should be at a greater distance from the roof than earlier in the season, so as to allow of a free circulation of air between the leaves of the plants and the glass. Plants that are to give very fine fruits should not only be those showing the largest flowers, but these must be thinned to about a dozen or so on each plant before they expand. Bring them forward in a gentle heat in the first stages of swelling, affording an abundance of atmospheric moisture so long as the fruit remains green. When it becomes whitish-green increase the temperature gradually to 80°, 85°, or 90° on sunny days, keeping through the night at 60°, to 65° or 70°, with 5° more on dull days or from artificial heat. Continue this until the fruit becomes red all over, when the temperature should be lowered to a minimum of 60°, in which they will increase considerably in size after they are apparently ripe, and to secure high flavour a free circulation of rather dry air must be maintained, watering only at the roots to keep the foliage fresh.

THE KITCHEN GARDEN.

Tomatoes.—The season hitherto has been most unfavourable to the production of early crops; what is particularly wanted is more sunshine. Strong old plants that gave good late crops ought now to be again well set with fruit, this time produced by side shoots duly thinned and stopped at the first or second joint beyond a cluster of fruit. It is those trained thinly up the roofs that give the best results. Keep them in a moist, well-fed state at the roots, and do not cut the foliage away recklessly. Autumn-raised plants placed in their fruiting quarters early in the year made such poor progress, or else became so drawn and weakly during the frosty weather, that it would have paid better in many instances to have destroyed them and started afresh with newly raised plants. The latter would have given much better crops; but the former, where both plans are being tried, will give the earliest gatherings of ripe fruit. Strong young plants form side shoots too freely, and unless there is good room for laying in an extra growth or two all these should be removed with a view to concentrating the plant's energies in the building up of stout, hard stems and the production of heavy crops of fruit. The primary leaves are fully equal to all that is required in the way of sap elaboration. Remove any large and unshapely central flowers that may form, as these produce deformed fruit. During the flowering period the plant should be gone over daily towards noon, and the flower stems smartly tapped with a padded stick, this distributing the pollen and effecting a good set. If large handsome fruits are desired it is especially necessary to effect perfect fertilisation. Commence top-dressing plants in pots and boxes with rich compost by

the time the first fruits are set, and give liquid manure or light surfacings of special manures soon afterwards.

Tomato Diseases.—Several diseases have to be reckoned with by all who grow Tomatoes under glass, and in particular where fire heat is freely used. Cladosporiums and the Potato disease are not the worst maladies that have to be contended with. Maintaining a good circulation of warm dry air principally by means of heat in the hot-water pipes and top air according to external conditions, also building up the plants strongly, are the best preventive measures, while if the disease blotches put in appearance in spite of these precautions anti-hlight powder should be dusted over all the older leaves. Full strength Bordeaux mixture, as advised in books, is often more injurious than the disease itself. Directly black stripe appears destroy the infested plants. Varieties that form extra large sappy stems are the most liable to infection. Nothing applied outwardly will arrest the spread of this disease, and on no account should seed be saved and sown from a tainted stock. It is possible this malady and also that known as the "sleepy" disease, will eventually be traced to an attack at the roots. A free use of soot might prove advantageous. The anti-hlight powder washed down to the underground portion of the stems would probably act beneficially as a preventive without injuring the roots, and Lysol, the new remedy for mildew and kindred diseases, might also be tried. One pint of this Lysol (an alkaline liquid) can be bought for about 1s. 9d., and this would be sufficient for mixing with thirty gallons of water for either spraying or watering purposes.

Tomato Plants for the Open Air.—It is a mistake to raise these long before they are wanted for the open air. Sturdy, late-raised plants are the first to become established in their fruiting quarters and seldom lose their first bunches of flower. This means, therefore, both an early and heavy crop of fruit. If seeds are sown at once in heat the seedlings when in rough leaf are placed singly in 4-inch pots, and kept near the roof glass and still in heat, they will quickly be large enough for hardening off and planting out. In the case of those planted against sunny walls head room is usually limited, and dwarf plants are the most desirable accordingly. Raise abundance of plants with a view to planting some quite in the open as well as against walls, fences, and temporary screens. Conference, Earliest of All, Laxton's Open Air, Sutton's Al, Dedham Favourite, Large Red, Mikado, Webb's Sensation, and Ham Green Favourite are all suitable for open air culture, and a trial ought certainly to be given the new Frogmore Selected.

PLANT HOUSES.

Crotons.—These are now on the move, and cuttings may be rooted where healthy young plants are needed. The cuttings should not be taken off where the wood is firm, or the lower leaves fall and roots are formed very slowly. After inserting the cuttings in sandy soil, water them and place in the propagating frame or under hand-lights until they are rooted. The hand-lights should be kept as air-tight as possible, the cuttings dewed over daily and shaded from the sun. Plants that have good heads and bold foliage may be notched, and a little sand and moss tied round the notched portion. In brisk heat where the syringe can be used freely roots will soon be emitted, and the head can be established in 4 or 5-inch pots without losing a single leaf. Plants that are needed for some time longer for table decoration and have been in the same pots for a good length of time should have a little chemical manure applied to the surface, which will assist wonderfully in retaining the lower foliage. Where numbers of small plants are needed the stems should be allowed to break after the head has been removed, and these side growths rooted when large enough. Small plants that have become stunted should have the head removed and rooted and the lower portion thrown away.

Gardenias.—Young plants that have been wintered in 3-inch pots should be transferred to 6-inch pots without delay. If they can be placed in brisk bottom heat they will soon start freely into growth. The shoots that the plants have made may be tied outwards towards the rim of the pots, and others from the base will soon be produced. Pinch any shoots that are taking the lead, or display signs of doing so. Water these plants carefully, as it is a mistake to keep them too wet. If plunged and the material kept moist they will not need much water beyond the daily syringings. Where the plants cannot be plunged syringe freely amongst the pots and maintain a brisk moist heat. Capital flowering plants can be produced in 5-inch pots from cuttings of young wood rooted at the present time. These cuttings root very freely, and should be inserted singly in thumb pots.

Vincas.—Where stoves and intermediate houses are kept gay *V. alba* and *rosea* are useful plants, and even in a cut state they last fairly well. Old plants that have enjoyed a good rest may be cut hard back, and started into growth in brisk moist heat. When started the plants may be turned out of their pots and the halls reduced by one-half, placing the plants again in the same size pots. For furnishing purposes those in 5-inch pots are often the most useful. Cuttings of soft wood root freely, and capital plants can soon be produced.

Anthurium Scherzerianum.—This is a very useful plant, and deserves to be grown more extensively. For associating with *Cattleyas* the effect is all that can be desired, and the spathes when cut are useful, lasting a long time in water. The plants are easy to grow, providing a good temperature can be maintained and abundance of moisture given. They do not appear to be very particular about soil as long as the pots are well drained and an open compost is used. They thrive in fibrous loam and fairly coarse gravel if good peat cannot be had. The material

used should not be raised above the rim of the pot; on the contrary, sufficient room must be left for water, and then 2 or 3 inches depth of common wood moss placed on the surface. They grow freely if potted in this material alone. A rest in a lower temperature, then ample heat and moisture while growing, are chief points to be attended to by the cultivator. If the syringe is used freely they will form a mass of roots in the surface moss.

Anthurium Andreanum.—This is also valuable for winter-flowering, and plants can be more effectively used in 6 and 7-inch pots than in those of a larger size. Large plants may be cut up and the stock increased without much trouble or risk of loss, or the stem of a good specimen can be notched and mossed round, and when roots have formed be taken off and placed in a 6-inch pot. The remaining portion of the stem should be cut into lengths of one or two joints—an eye to each piece is all that is needed. These quickly form roots, and by the end of the season make capital plants. If the old plant is cut over near the surface three or four shoots will soon start, and a better plant than ever will be produced. The cuttings root freely in sand and moss. Established plants will grow well in any coarse open material.

THE BEE-KEEPER.

APIARIAN NOTES.

THE APIARY.

THE weather still continues cold, bleak, and sunless, with from 7° to 10° of frost on several mornings. It was the 2nd of April before a bee was observed with natural pollen, and the weather is so unfavourable to bees outside that I have deemed it advisable not to give peameal. Such adverse weather, so fatal to bees, is the reason I have so long advocated not to feed in the spring, unless in cases of absolute necessity, nor to make any alteration whatever of the hive wrappings. Let the temperature and the increase of bees be the factor to regulate these matters.

YOUTHFUL QUEENS.

It is only within the past year or two that the modern school relinquished the idea that queens were at their best when three years old, and this in spite of the fact that for perhaps centuries Scottish bee-keepers have kept no other queens for stocks than those of the current year, always destroying those bred in June and July of the previous year the following season. I have had four years old, and on one occasion had one (an Italian) which bred seven seasons, but that does not induce me to keep queens longer than twelve months. After that age, if the bee-keeper has managed them aright previously, they are practically worthless.

I scarcely, if ever, lost a queen under a year old, but have at least to the extent of 50 per cent. of those two years old, while at three few survived. Queens kept in hives too small for their capacity in egg-laying may do equally as well the second year of their life as in the first year; but that need not raise the contention that queens are as good the second as the first year, because if a queen is hampered in her laying the first year she will naturally be the better able to continue as good for another year.

But this is the great point of my argument. A hive of bees only half, or less than the size it should be, cannot possibly gather half the quantity of honey a full-sized hive with a youthful queen will yield. The foregoing has been written in answer to several queries, "C. R.'s" being one, but will be useful to others who still cling to antiquated ideas.—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES.

THE present is a very trying time for bees, as during the past fortnight the weather has been dull and cold. High winds, chiefly from the north, have been very prevalent; only once during that time, and then only for a few hours, was the wind in the south. Heavy showers of hail, sleet, and rain have been of almost daily occurrence, a great change from the bright, spring-like weather experienced in the early days of March. Bees were then flying in great numbers. Pollen was being collected freely from the early spring flowers. Chief among these were the Winter Aconite, Snowdrop, and Crocus, and later from the Palm Willow. This is one of the best early pollen-producing trees I am acquainted with, and, like all the *Salix* tribe, delights in ample moisture.

Bees will travel a long distance to collect the pollen from this variety, and it is really surprising the quantity they will secure even from a few small trees. If they can be planted within a few hundred yards of the apiary it is better, as during the early spring when cold showers are so prevalent, and bees when heavily laden with pollen are caught in a heavy shower before they can reach their hives, are beaten to the ground never to rise again. A great

number of bees are lost in this manner, which shows the advantage of having the flowers for providing the pollen planted within reasonable distance of their hives.

In the summer, after a heavy thunder shower, when the bees are working probably a mile or more from home and are overtaken by the storm, they are beaten down by the thousand; but at that time of the year the sun comes out bright and warm, the bees soon dry themselves, and are not much the worse for the mishap. Bees I have noticed are often weatherwise, as on the appearance of a storm they take wing homewards, and I have seen the sky quite darkened for a few minutes by the number of bees returning to their hives.

Great care should now be taken that none of the stocks suffer for the want of supplies, as all will depend on the spring treatment whether the bees are strong and in good condition to gather a surplus when the honey flow comes. The warm weather experienced in the early part of last month started the majority of stocks breeding freely, and unless they are kept warm and supplied with ample food they must eventually perish.

It is a great advantage to have a few frames of sealed stores on hand, and if any doubt exist as to a particular stock, turn the cover back for a few inches and take out the first frame or two, and then quickly draw the other frames back until reaching the cluster, insert the full frame, having previously uncapped a few inches of the sealed stores. This will keep them in good condition, and is much better than feeding with syrup or candy, as the less the bees are handled, particularly at this time of the year, the better. The next best plan is to insert a cake of soft candy under the quilt directly over the cluster, or if this is not available feed from the top of hive with thin syrup, which should be supplied warm in a bottle feeder. Any wide-mouthed bottle will answer the purpose. Tie a piece of muslin over the mouth. Cut a hole through the quilt large enough to admit the bottle, putting a piece of perforated zinc over the hole underneath the quilt on top of the frames, as this will prevent the bees escaping when removing the feeder, invert the bottle directly on the top of the quilt; the muslin will prevent the syrup escaping, and will allow the bees to satisfy all their requirements without any loss of heat.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Charlesworth & Co., Heaton, Bradford.—*Orchid List*.
J. Veitch & Sons, Royal Exotic Nursery, Chelsea.—*General Plant Catalogue*.

TO CORRESPONDENTS

* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Rat Poison (R. B.).—This may be procured from Messrs. Sanford and Son, Sandy, Beds.

Sulphate of Iron (W. E.).—The sample is what you suggest, and is similar to that which is used to some extent for agricultural and horticultural purposes.

Chrysanthemum L. Canning (J. H.).—This variety was raised by a Mr. Craig, and placed in commerce in 1888. In the National Chrysanthemum Society's official catalogue the name is given as at the head of this paragraph.

Cucumber Disease and Various Remedies (T. J. G.).—You will find instructions for using soluble phenyle on page 241, March 14th. It was again referred to on page 283, March 29th, in reply to "J. W." who promptly used it with satisfactory results. Sulphate of iron and kainit will be found advised to "F. W." in the present issue. Corrosive sublimate solution is referred to, and methods of using it described on

page 303, last issue. First try the phenyle. If you send your full name and address, repeating your other question, it will be answered by post.

Zonal Pelargonium Spotted (*J. H. S.*).—The leaf is infested by the spot fungus, a species of *Glæosporium*, which thrives in a confined and cold atmosphere and is retarded in a somewhat dry and comparatively warmer one. The plant should be carefully watered and not highly fed at the roots. This, with brighter weather and a freely ventilated atmosphere, will enable the plant to make new growths free from the malady, but those affected will retain the malformation.

Manures for Tomatoes (*R. J. D.*).—Steamed bone flour and muriate of potash are undoubtedly good manures for Tomatoes. Most strong soils contain potash; but there are exceptions, and where Clover grows freely there is potash in the soil. If you wish to grow Tomatoes in the same soil that produced a good crop last year you will not err in applying the manures named at the rate of a quarter of a pound to each square yard of surface, pointing it in not very deeply, but we should place a little fresh soil round the roots when planting.

Hardy Climbers for Trellis (*C. W. H.*).—If the soil and climate are suitable for Roses we think the Ayrshire varieties, Bennett's Seedling, Dundee Rambler, Queen of the Belgians, and Ruga would be sufficiently hardy. Clematises would also answer. *C. Flammula* is one of the rambling growers, but the flowers are not gay, and we see no reason why such effective varieties as Jackmanni, Rubella, and Star of India should fail. The Wistaria would grow no doubt, but it is a question if it would ripen sufficiently for flowering. Laburnums are good for covering arches, and beautiful when flowering freely.

Fungus on Pear Tree Roots (*Constant Reader*).—The Pear tree roots are badly infested by the clustered mycelium of a fungus, which is undeterminable from there being no "fruits," but it is probably *Agaricus melleus*, the form of it known as *Rhizomopha subcorticalis*. The fungus has probably been introduced in portions of wood, such as twigs, in manure, or by other means, for no treatment whatever will produce a living organism, for such is the perpetuation of pre-existent parents either by spores or mycelium. You may use the following for the destruction of the mycelium—Jeyes' fluid, one ordinary wineglassful to 4 gallons of water, or soluble phenyle at the same rate, both of which may be procured from any chemist, or through him at a few days' notice.

Grapes Scalded (*J. S. North Wales*).—The berries are badly scalded—a very unusual occurrence for so early a period of the season, and is probably the result of bright days following on the severe and dull cold weather. There is no disease otherwise, and it is likely that a little air constantly, with a rather warmer atmosphere than usual, would have prevented the scalding of the Grapes. It is a great pity, as the berries have stoned, and in the course of a few days would have commenced colouring, when they are quite safe from danger as regards scalding. After a period of dull weather great care is necessary in ventilating, this being done early and judiciously, so as to have the Grapes perfectly dry before the sun acts powerfully on the house, then the berries become heated equally with that of the surrounding air, and they cannot then be injuriously affected.

Spraying Muscat Grapes (*Novice*).—Some professional gardeners have found the syringe of assistance to them in setting Muscat Grapes, but we do not advise amateurs, or gardeners either, who have had no experience in the practice, to adopt it. They may try it, if they wish, on a few bunches, and note the results, but the overwhelming majority of the most accomplished Grape growers set their Muscats without syringing the bunches when flowering. Those who find the plan answer drive the water directly on the bunches about the middle of the forenoon, forcing off the liquid globules, we presume, that sometimes prevent the pollen from reaching the stigmas for the purpose of fertilisation. We know that some have succeeded with the syringing process, but others have failed, and therefore we advise the inexperienced to proceed cautiously and experimentally in the matter.

Tomato Plant Roots (*N. W.*).—The Tomato plant roots did not show any signs of attack from eelworm, nor were we able to detect any micro-organism on the underground stem—indeed, that part and the fibres appeared quite normal, and there is nothing to be alarmed about, so far as the roots are concerned. We should not use any disinfectant now, but follow on with the sulphate of iron and kainit, as advised in these columns on March 28, page 283, and as there is a deficiency of colour in the leafage, employ nitrate of soda occasionally, using $\frac{1}{4}$ oz. to a gallon of water, taking care not to overdo the plants with any of these solutions, nor make the soil sodden by unnecessary waterings. Indeed, it is better to use the chemicals as top-dressings, and for your plants you should employ a mixture of 5 parts superphosphate, 2 parts kainit, 1 part nitrate of soda, and $\frac{1}{2}$ part sulphate of iron, crushing the nitrate of soda, mixing thoroughly, and using from 4 to 6 ozs. per square yard every fortnight or three weeks; or, if quite vigorous enough, at more distant intervals, say every month or six weeks, whilst increasing the amount of nitrate of soda if more vigour is required.

Black Hamburg Vine Leaves Deformed (*J. H. S.*).—The Vine leaves are suffering from "browning," a disease caused by a so-called fungus, but really a myxomycetes—namely, *Plasmodiophora vitis*, which by some means (inexplicable without illustrations of a very intricate character) passes from the roots to the leaves when these are about the size of a crown piece. It arises from the spores of the

myxomycetes, which, as zoospores, form a plasmodium, and with amoeba-like movements, passing from place to place in quest of food—from the roots to the leaves. The object is to prevent it, and that may generally be effected by dressings of lime to the border, which we advise to be given with as little delay as possible, employing about half bushel per square rod, and pointing in lightly. The *Plasmodiophora* has an abhorrence of active lime, also of corrosive sublimate, a terrible poison, and should not be used upon the foliage, but it may be used at the roots at the rate of 1 oz. to 30 gallons of water. We advise the lime as the safest and most desirable application. Admit air carefully and early, as a close atmosphere encourages the parasite, also a rich and wet condition of the border.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*R. T. B.*).—1, *Streptosolon Jamesoni*; 2, *Clivia (Imantophyllum) miniata*, good variety; 3, An *Amaryllis*, varietal name undeterminable, except by comparison in a large collection. (*C. C.*).—1, *Saxifraga Boydi*; 2, *Primula rosea*; 3, *Daphne Mezereum album*; 4, *Primula cashmeriana*; 5, *Cypripedium calceolus*; 6, *Dielytra spectabilis*. (*G. H. A.*).—1, *Lycaste Skinneri*; 2, *Cattleya Trianae delicata*; 3, *Phaius grandifolius*; 4, *Angraecum sesquipedale*; 5, *Dendrobium nobile nobiliss.* (*Oaks*).—The specimen is an Iris, but too withered for us to say what variety or species. Send fresh specimen.

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, London, W.

COVENT GARDEN MARKET.—APRIL 10TH.

MARKET very quiet, with prices practically unaltered.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, per half sieve ..	1	6	to	4	6	Grapes, per lb.	1	6	to 3 6
" Nova Scotia, per barrel ..	10	0	21	0	Lemons, case	10	0	15 0	
Cobs per 100 lbs. ..	20	0	21	0	St. Michael Pines, each ..	2	0	6 0	
					Strawberries, per lb. ..	2	0	6 0	

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb. ..	1	6	to	2	0	Mustard and Oress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	0	Onions, bushel	3	6	4	0	
Carrots, bunch	0	3	0	4	0	Parsley, dozen bunches ..	2	0	3	0	
Cauliflowers, dozen	3	0	6	0	0	Parsnips, dozen	1	0	0	6	
Celery, bundle	1	0	1	3	0	Potatoes, per cwt.	2	0	4	0	
Coleworts, dozen bunches	2	0	4	0	0	Salsafy, buidle	1	0	1	5	
Cucumbers, dozen	2	0	5	0	0	Seakale, per basket	1	6	2	3	
Endive, dozen	1	3	1	6	0	Scorzoneria, bundle	1	6	0	0	
Herbs, bunch	0	3	0	0	0	Shallots, per lb.	0	3	0	0	
Leeks, bunch	0	2	0	0	0	Spinach, bushel	0	0	0	0	
Lettuce, dozen	0	9	1	0	0	Tomatoes, per lb.	0	2	0	6	
Mushrooms, punnet	0	9	1	0	0	Turnips, bunch	0	3	0	4	

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms ..	4	0	to 4	6	Roses (indoor), dozen ..	0	6	to 1	0
Azalea, dozen sprays ..	0	6	1	0	" Tea, white, dozen ..	1	6	2	6
Asparagus Fern, per bunch	2	0	3	0	" Yellow, dozen ..	2	0	3	0
Bouvardias, bunch ..	0	6	1	0	" Safrano (English),				
Carnations, 12 blooms ..	2	0	3	0	dozen ..	2	0	3	0
Daffodils, (dbl.), doz. bchs.	3	6	6	0	" (French), yellow, doz.				
" (single), doz. bchs.	4	0	6	0	blooms ..	1	6	2	0
Eucharis, dozen ..	4	0	6	0	" (French), Red, dozen				
Gardenias, dozen ..	3	0	4	0	blooms ..	2	0	2	6
Geranium, scarlet, oz.					Smilax, per bunch ..	4	0	6	0
bunches ..	6	0	8	6	Tuberose, 12 blooms ..	0	4	0	6
Lilac (French) per bunch	5	0	6	0	Violets (English), dozen				
Lilium longiflorum, dozen	4	0	6	0	bunches ..	1	6	2	6
Marguerites, 12 bunches ..	1	0	3	0	Violets (French), Parme,				
Maideuhair Fern, dozen					per bunch ..	3	0	4	0
bunches ..	6	0	8	0	Violets (French), Czar, per				
Orchids, dozen blooms ..	1	6	12	0	bunch ..	2	0	4	0
Pelargoniums, 12 bunches	6	0	9	0	Violets (French), Victoria,				
Primula (double), dozen					dozen bunches ..	2	6	4	0
sprays ..	0	6	1	0					

PLANTS IN POTS.

PLANTS IN FLOWERS.									
	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (golden) dozen	6	0	to 12	0	Ferns (small) per hundred	4	0	to 6	0
Aspidistra, dozen	18	0	36	0	Ficus elastica, each	1	0	7	0
Aspidistra, specimeu plant	5	0	10	6	Foliage plants, var., each	2	0	10	0
Azaleas, each	3	6	4	0	Genistas, per dozen	9	0	12	0
Cinerarias, per doz.	9	0	12	0	Hyacinths, dozen	9	0	12	0
Cyclamen, dozen	9	0	12	0	Lycopodiums, dozen	3	0	4	0
Dracæna, various, dozen ..	12	0	30	0	Marguerite Daisy, dozen ..	9	0	12	0
Dracæna viridis, dozen ..	9	0	18	0	Myrtles, dozen	6	0	9	0
Erica, various, dozen	9	0	18	0	Palms, in var., each	1	0	15	0
Euonymus, var., dozen ..	6	0	18	0	„ (specimens)	21	0	63	0
Evergreens, in var., dozen	6	0	24	0	Primulas, dozen	4	0	6	0
Ferns, in variety, dozen ..	4	0	18	0					



MANGOLDS.

ABOUT the middle of April being the best time for sowing this useful crop, which is now known under the designation of Mangels, we desire to call attention to its cultivation, use, and true place in the economy of farm management. Many a time have we been asked whether it is better to sow it on ridges or on the flat. We have answered, with a full knowledge of the common opinion, that there should be ridges for a humid climate, and no ridges for a dry climate; that where enough farmyard manure can be had there should be ridges; without it, and with only chemical manures, ridges are not required. Now as to climate. In this matter we are bound to say that in the dry climate of East Anglia, at half a dozen farms in different localities wide apart, we have invariably sown on ridges, for the simple but important reason that we always use enough farmyard manure in the furrows to hold and supply the young plant with moisture. We regard this point of culture as so important that enough of such manure is always held in reserve for this, the best, most useful, and most profitable of all root crops.

The furrows are opened with double-breasted ploughs, on clean land, 20 inches apart, our aim being to have a full crop of medium-sized roots in preference to large or very large roots. Keeping this well in view, we never allow the maximum distance of 30 inches apart except on foul land in process of being got clean or free from perennial weeds. Then, and only then, is it desirable to have the extra 10 inches of space between the rows for a longer use of the horse hoes than is possible at 20 inches. We may explain that with the wider spaces between the rows, however vigorous the growth may be, the leaves are much longer in meeting across the space, and hoeing is possible, and in point of fact is done for a proportionately longer time. The furrows in either case are made deep enough to contain a layer of farmyard manure 6 inches in depth, and for the manure to be well covered when the ridges are split and the furrows closed in readiness for the sowing of the seed.

Before splitting the ridges a dressing of 3 or 4 cwt. of common salt is given broadcast, and with the seeds some chemical manure is drilled. Recipes for this differ widely; 2 cwt. of mineral superphosphate, 2 cwt. nitrate of soda, and 1 cwt. muriate of potash is an excellent mixture for the seed drill; later on after the plants are singled, have been hoed once, and are growing freely, another cwt. or even 2 cwt. of nitrate of soda may be profitably applied as a top dressing. The expenditure may appear extravagant, but it is entirely justified by results. Be it understood, however, that an excellent crop of Mangolds can be had without a top dressing of nitrate of soda; its use points to super-excellence—an extraordinary weight of crop per acre.

Very puzzling would our advice to drill manure with the seeds be to farmers whose knowledge of drills is confined to heavy seed drills pure and simple. We use a light American drill having separate seed and manure boxes, so contrived that the manure and seed pass to and through the coulters together, and so enter the soil in the groove or drill made by the coulter. We have so drilled manure with this and other seeds and all kinds of corn for many years with safety and success. The common fear that salt brought in contact with the seeds involves risk of harm during germination, being evidently groundless. It is obvious that in the process of drilling, seeds and manure become

mixed with the soil and separated sufficiently to prevent harm. The soil is thus so stored with fertility that the roots have abundance of sustenance from the very outset. The growth is free and robust after the speedy seed germination which early sowing makes certain.

The soil has ample moisture, is rich in fertility, and as the roots strike downwards they lay hold of the farmyard manure, and thenceforward have a practical immunity from drought. More than this—much more—there is no check to the growth, which goes so briskly on from seed germination to the clearance of the matured crop from the land that the storing of the roots can always be done early, while the surface is so firm that carting is light, and there is no risk of harm from frost. For every reason then let the sowing be done early; if it is done well too, in the manner we have indicated, there will be a full plant and a profitable crop.

WORK ON THE HOME FARM.

March went out with a last week of stormy weather, its rough winds being greeted by April showers, which did much good to the young plant of spring corn. But growth was checked by cold dry wind and sharp frost during the first week of April. In the north midlands the house tops were white with snow on the morning of April 4th, and on the following morning 7° of frost were registered. Though growth has been checked in cornfields and pastures, work on the land has gone briskly. We have seen some delightful seed beds, with the tilth so fine and deep that success was a certainty in the earliest stages of crop growth.

Mangold sowing is being pushed on with more than ordinary expedition, and we shall soon be ready for sowing the first crop of Swedes and white Turnips. A field of arable land which has fallen in hand this Lady Day will be at once sown with Oats and a full dressing of chemical manure. The American Excelsior drill is a most handy implement at all times, and is especially so at this busy season of the year, for sowing corn and manure together, or for sowing light seeds alone, such as Clover, mixed grass and Clover, Lucerne, Sainfoin, and similar seeds.

Vegetable and fruit farmers are now very busy. Potato planting is being pushed briskly on, hand and horse hoes are going daily in the Strawberry fields, Raspberry pruning has only recently been finished, and the moulding plough passed between the rows on many a farm, owing to the hindrance to such work by the very late and severe winter weather in February. The manner in which Broccoli in open fields has recovered from the effects of 20° of frost is simply marvellous. No doubt the excellent plan of earthing the stems right up to the leaves in autumn is an excellent preservative. This is done admirably by one turn of the double-breasted plough between the rows, and then though the outer leaves become so browned by frost that the plants appear to be dead, stem and centre are unaffected, the crop is safe, and it is then certain to prove remunerative. The aim appears to have sturdy plants of moderate size, so well protected by soil and a dense growth of leaves as to be practically safe from frost.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1895. March and April.		Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	31	29.520	42.3	41.0	N.	41.8	50.9	37.8	93.9	36.0	—
Monday ..	1	29.684	40.3	38.7	N.	41.2	52.6	29.1	86.9	25.4	0.056
Tuesday ..	2	29.880	42.3	41.1	N.	41.7	48.0	39.2	64.1	34.1	—
Wednesday	3	29.964	39.1	38.1	N.	41.9	46.3	37.6	63.6	37.3	0.010
Thursday ..	4	30.126	40.2	37.2	N.	41.7	46.1	36.1	71.2	32.4	—
Friday ..	5	30.257	40.8	38.1	W.	41.1	50.0	35.2	75.3	30.4	—
Saturday ..	6	29.636	46.1	45.9	S.W.	41.2	50.0	38.2	63.5	33.8	0.022
		29.667	41.6	39.9		41.5	49.1	35.2	74.1	32.8	0.088

REMARKS.

31st.—Heavy rain at 1 A.M., sunshine all day.

1st.—Generally sunny till 3.30 P.M., then rain till 4.45 P.M., and large soft hail at 4.15 P.M.; fine after.

2nd.—Overcast morning, with frequent spots of rain early; occasional gleams of sun in afternoon.

3rd.—Overcast morning; sunny afternoon.

4th.—Slight rain and flakes of snow early; sunny at times in morning; overcast afternoon.

5th.—Fine, with occasional sunshine.

6th.—Overcast day with a shower at 1.30 P.M.

Temperature has fallen a little, but is in no way remarkable.—G. J. SYMONS.

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Journal of Horticulture.

THURSDAY, APRIL 18, 1895.

PREPARING FOR OLD AGE.

"OLD age pensions," and how to provide them, is what may be termed a popular problem of the day. A puzzling problem, too, to many, for not a few are laudably engaged in its solution, but yet little real progress is made. Nor is it likely to be made until the great mass of the people rely less on what others may do for them and more on their own endeavours, in conjunction with some great organisation yet to be devised, based perhaps on small, or not too heavily felt, deductions from wages after the manner of the new scheme of the London County Council, which has just come into operation. It is entitled a "Superannuation and Provident Fund," and some 700 men of various grades employed in the parks and open spaces became participators in it; indeed it is a condition of their employment that they do so except in the case of any of them being already entitled to pensions under arrangements made prior to the parks coming under the control of the Council, or who can prove to its satisfaction that they have otherwise insured themselves to meet the adverse contingencies of life to an extent that will secure to themselves substantially the same benefits as they would be entitled to as contributing members of the newly established fund. This is not a mere pension fund, but may be something a good deal better, as under the pension system a man may struggle on under physical infirmity to the requisite age for retiring, "enjoy" his pension for a few months or a year, then die, leaving, it may be, a widow penniless on the world.

The arrangement now completed under Parliamentary powers consists in every member having 3l. deducted from every 10s. of salary or wages, or part of 10s. Thus, a man earning between 20s. and 30s. a week will leave 6d. behind; between 30s. and 40s. will leave 9d.; a man having £2 and less than £2 10s. a week, 1s.; and so on. Whatever the sum may be the County Council adds an equal amount; for instance, if a man's deductions amount to £2 12s. a year, the sum of £5 4s. will be invested for him, and he will be entitled to 3 per cent. interest on it and all amounts similarly contributed and added from year to

year and on the interest accruing, or, in Sir John Hutton's words, "for every sovereign contributed in the form of wage deductions the Council adds another sovereign and allows compound interest on both."

Each member has a separate account, and is entitled to have a copy of it annually in order that he may know the exact amount standing to his credit; but this amount is divided into two parts, one showing the member's contributions and interest thereon, and the other the Council's equal additions and interest accruing. This was rendered necessary on Parliament declining to agree to the Council's proposition to exempt the whole of the fund from the hands of a creditor. The public (added) money was thus not unnaturally protected, but not the members' contributions. This division of the fund, however, affords a means of differentiating in the repayment of monies to members under specified conditions, and which do not appear to be otherwise than reasonable and fair.

The prime object of the scheme is to provide a superannuation fund for workmen (and women) who have spent the best years of their life in the service of the Council and then retire, or who have to do so through illness at any time. In these circumstances the whole amount of the accumulations of both parts of the fund is to be paid to the member by cheque, or in the form of an annuity, as he may prefer; but if a member only works for the Council till he finds a better position, and retires on finding one, then only the amount of his own contributions, with interest, is paid to him—not any public money; and similarly, any member leaving the service of the Council through reductions or alterations in the establishment receives his own money with interest only. There is still another very important, and also a very proper proviso, to the effect that if any member is discharged through fraud, dishonesty, or misconduct, involving pecuniary loss to the County Council, or who retires to avoid conviction of such misdeeds, he loses his right to anything; but the Council may, in its discretion, make such repayments as it thinks fit, according to the circumstances of the case.

On the death of a member who is entitled to the benefits of the fund the full amount of his contributions and the Council's additions, with interest on both, will be paid to his representatives, and members have absolute power to dispose by will of all monies payable under the scheme. The County Council defrays all the expenses of management, and guarantees the full amount of all payments due to retiring members or their representatives under the rules provided for the management of the fund.

In the parks department, with which our readers are more particularly interested (and it is doubtless the same in others), there is an evident desire to raise the status of the men employed. Only men who have had good training in gardens, and who can present testimonials of competency and unblemished character can now obtain positions on the permanent staff. This is entirely as it should be, but is not as it always has been. The loose methods of the past led to the employment of men who were not gardeners, and to some who were neither useful nor ornamental, and it is a matter of surprise that the superintendents have done so well as they have in rendering the parks so enjoyable, considering the many crude and careless helpers which have found their way into positions which they were never qualified to fill. A change is being gradually effected, and it would seem as if the policy of the authorities was to obtain the services of the best men available, and to make their positions worth keeping. To this the just and generous scheme, which came into operation on the first day of the present month, will directly tend, and London will be eventually the gainer.

How glad would many gardeners be in various parts of the country if they could feel themselves firmly settled in their positions, and contributors to a fund so safe and so certain to be beneficial as the one in question is sure to be to those who are members in virtue of the positions they occupy. The nearest

approach to it of anything in the gardening world is the splendid Society much overnamed, and by far too many underrated, the "United Horticultural Benefit and Provident Society." It is a pity its name cannot be shortened, and its members increased a thousandfold, for it is one of the safest, soundest, and best of provident societies open to gardeners in all parts of the kingdom. If a thousand proprietors of gardens could see their way to deduct say 6d. a week from the wages of their gardeners, and add another 6d. or even a guinea a year of their own, they would set the ball rolling in a good direction, and obtain and retain the services of good, steady, prudent men, who would work the more cheerfully through the provision thus made for the demands of the future.

EXPRESS GRAPE GROWING.

YOUR article in last week's issue of the *Journal of Horticulture* on page 305, and the accompanying photograph on page 315, under the above heading, must prove an interesting subject to many who still hold adverse views on the early cropping of Vines, and which certainly ought to convince many gardeners of great ability who still cling to the old theory, that a Vine must of necessity have a few years to become sufficiently established before it is capable of producing a crop of first class Grapes. From my own experience I have proved that Vines are capable of producing enormous crops of Grapes at an early stage of their existence under good management.

It may sound somewhat egotistical on my part to give you my own practice and experience, but I trust that it may be the means of encouraging some at least to leave the old beaten track, and try the newer method, which I and many others have proved to be sound. I have planted Vines in nearly every month in the year with most satisfactory results, but to enter into details would be impossible without trespassing too much on your valuable space, and I will therefore in the meantime confine myself to one particular case.

In the month of July, 1887, we erected a lean-to house, 72 feet by 16 feet, and planted it the following month (August 11th and 12th) with Vines raised from eyes in the month of March of the same year, and it may surprise some to know that the Vines were allowed to remain in the 3-inch pots in which they were rooted; many of them were not more than 18 inches in length, and certainly not stronger than a good straw. Many will condemn this as bad practice (so do I), as the Vines should have received better treatment. Well, the fact of the matter was simply this. We did not contemplate building this house until the following season, but after the Grape-thinning was completed a stable and other outbuildings had to be erected, and the vinery was run up at the same time, and planted with twenty-eight permanent Vines (Muscat of Alexandria), along the front. A row of supernumeraries was planted 6 feet from the front and carried up to the wires, and the same number on the back wall, and by the end of the season the whole house was completely covered with abundance of splendid well-ripened wood.

The permanent Vines were cut back, leaving about 7 feet of cane, and the supernumeraries were in some instances left nearly the whole length of the rafter according to the strength of the canes, and the Vines on the back wall treated in a similar manner.

The Vines were allowed to start into growth in the month of March. The following year, 1888, the whole broke strongly with the exception of three or four of the Gros Colman, which did not break so evenly at the base. The permanent Vines were allowed to carry seven bunches each, the Colmans (supernumerary) ten and twelve bunches each. Muscats were all cut in the month of September for market and exhibition, and averaged 2½ lbs. per bunch. The Colmans, requiring a little longer time to finish, were allowed to hang another month, and weighed 1½ lb. on an average. These Muscat Vines have borne heavy crops of Grapes every year since, and to-day they are in splendid form and as promising as ever. Thus in thirteen months from the time of planting, and nineteen months from the time the eyes were rooted, these Vines carried and finished well a heavy crop of fruit.—W. INNES, *Derby*.

EMPLOYERS AND GARDENERS.

(Concluded from page 307.)

EMPLOYERS, of course, are subject to the same natural variations of temperament and natures as gardeners, and I am aware there are many cases in which the gardener has nothing to complain of. Still, there are others where the lot of the gardener might be much

happier if the employer would only try to do what is just and right. In some instances no doubt it occurs more from want of giving the case attention than from any desire to act unfairly, but it should be a very important matter to an employer whether his servants are happy or not. Some employers have a rather queer conception of what a gardener should be; even in what we call good places this peculiarity is often evident. For instance, a glance through the columns of our papers will reveal the fact that a gardener should never exceed forty years of age; he should always be married, but seldom is he allowed the privilege of having a family. Now, it has been my good fortune to meet some excellent gardeners over forty, and also married men with families, whom the most particular person might venture to live within a few hundred yards of. Then, again, there are those who want men thoroughly well up in their calling to make themselves generally useful—not object to a cow. I have no objection to gentlemen trying to secure the services of such men; it is no doubt necessary that they should have all this work done by one pair of hands, but I do object to all sorts and conditions of general men servants being called the gardener. The term gardener in this case covers a very wide area, and at the same time I know there are many good gardeners who are through no fault of their own compelled to fill these kind of places. Yet in many instances the title is altogether misleading, for amongst their many duties the garden is often the very last to gain their attention. Did you ever hear of a butler being wanted who could milk, a gamekeeper who could drive a pair, a coachman to do his own shoeing, or a farm bailiff who could wait at table? I have not, and it seems to me rather hard lines on the avocation, to give men (excellent men they are no doubt, and I have nothing but good to say of them in the manner which they manage to get through their difficult tasks), whenever at a loss for a name, the title of gardener.

Perhaps gardeners are, to some extent, answerable for this state of things, for I know of no class of men so willing to give away to the first applicant what has cost them years of study to obtain. They are anxious to circulate their knowledge, and no one hesitates to ask a gardener how he grows such a plant, feeling aggrieved if not told. It is not so in other walks of life. Who would be brave enough to ask his doctor to tell him, after an illness, what medicine he used, so that in future he could doctor himself? No doubt in many cases this freedom of giving information has done good to gardeners, but still I think it has also been the means of overstocking the market with a certain class of men who pass as gardeners.

Another duty of an employer is to provide his gardener with the necessary convenience for producing what is required. It may be said, Surely he will have the common sense to see for himself that unless he does so he cannot expect it? Yet I am afraid there are but few gardeners who are quite satisfied on this point. The employer sees exposed for sale, at all seasons, and in the greatest profusion, fruit, flowers, and vegetables, and often goes home dissatisfied with his own gardener. But if he would visit the places where this produce comes from, in most cases each particular kind being grown by a specialist, and who has the very best appliances for producing the same, he would probably consider his own man cleverer than he had any idea of.

A garden is looked on by many persons as a luxury, and must be endured if they are to be considered fashionable. No doubt it is a luxury; in fact, there are few things that are not. Gardeners are expected to produce these luxuries, and so long as they do so to the satisfaction of their employers, the cost of so doing ought to be credited to them as in any other business. The plants grown for decorating the house and grounds, all requiring special care, the demands of the household down to the cook, mean an amount of time and trouble that would astonish many an employer, could the gardener charge for it at the same rate as the general furnisher.

In these advanced times the question of shorter hours of labour has had the consideration of many of our leading men, and even of our law makers, but although most trades have to some extent benefited by it, gardeners have had few concessions. Why it should never have been thought necessary for them to have a few hours in the week to indulge in recreation as well as the tradesman I do not know, for I think of the two the gardener is more deserving. If a tradesman works overtime he is paid for it, and surely the gardener, as some set-off against the extra time he puts in—Sunday duty and fires, for instance—might be allowed a half-holiday once a week. For want of combination gardeners are not in the same condition to press their wants as other classes, and employers would in most cases be amply rewarded if they were to grant some small concessions on this point without being asked for them.

An employer should also satisfy himself that the dwelling places on his estate are what they ought to be. I am well aware

great improvements have been made in this respect, but much yet remains to be done. There are many cottages and bothies which to live in may mean to the occupant anything but comfort, and which, if not owned by influential persons, would soon be condemned by the authorities as an abomination.

The employer should also pay his gardener a wage he is satisfied will keep him and his family in comfort and respectability, for he is expected to have a respectable appearance, which is often a very difficult task. The supply will, no doubt, always regulate to a great extent the wage question. But I would ask, Is it just to pay a man the very lowest wage he can be had for? Before a man can expect to secure a fairly good situation he is expected to know a great deal. He should be blessed with a good education, be well conversant with all the latest ideas connected with his calling—a calling so deep and complicated, that although the oldest on record, not the most clever and scientific man who has ever lived has been thoroughly able to bottom—and what is his recompense? Why in many instances he is offered a wage at which many a bricklayer's labourer would turn up his nose.

In conclusion, I would remark that employers should also remember that servants are, like themselves, human beings, not mere machines. I am afraid in some instances the machine is taken the most care of, for of course the man's place can be filled at a less cost than a new machine, the greatest care being taken that the machine is not taxed beyond its power. The human being, on the other hand, has no dial whereby to see the amount of pressure going on in its workings, except his appearance, which unless very closely observed is not noticed. The pressure is kept increasing as necessity demands, until it is suddenly discovered that there is a limit to even man's endurance, often too late. Then comes, "Poor fellow! I had no idea he was so bad." Why? Because they had not taken the trouble to watch the indicator.

It would have been much better had the employer taken a kindly interest in the welfare of his servant. To thaw, as it were, some of those icy appearances which cause a sort of keep-your-distance feeling to creep over the servant, to make him look forward with pleasure to your approach, and not with dread, as though something was going to happen to him.

I may perhaps have said a few hard things in this paper, but I can assure you that to those to whom they may apply had I the power I would hit still harder. To those who are not offenders under any one of my indictments I feel confident that my humble efforts to bring others to their way of thinking cannot help being appreciated.

To the well doing of both classes I would say, All honour to them, and may their good example be copied by the remainder, to the mutual benefit of all, and to remember that the world, and the good and beautiful it contains, was made for all.—GEORGE WILSON, *Svanland Manor, Brough*.—(Read at the *Hessle Gardeners' Mutual Improvement Society*, March 12th.)

SOWING AND HOEING.

DAYS of bright sunshine have come at last; the trees are bursting quickly into leaf, lawns have again assumed the rich green verdure of the spring, and the upturned soil once more dries and crumbles ready for the sower's work. During the last week or ten days I fancy more seeds have been sown in the kitchen gardens and allotments of Britain than the same class of cultivators have sown during a corresponding period for at least a quarter of a century. Since the great frost broke up there has been so few opportunities for seed-sowing in the open air, that in some districts nothing in that way has been attempted. Our experience this year will perhaps give us some idea of the "rush" of work during a Canadian spring, where the ground has to be prepared and the bulk of seeds sown within the compass of a few weeks.

Next in importance to the work of seed-sowing during the spring months is that of doing all in our power to forward advancing crops by frequently stirring the soil. After the long winter and cold early spring the ground is still wet and cold beneath the surface, and every advantage ought to be taken of sunny days to improve matters in this direction, and at the same time to impart more abundantly to the soil that active agent of fertility—the nitrogen of the atmosphere.

The immense benefit which growing crops derive from the practice of frequently stirring the soil has been amply demonstrated by both practical and scientific horticulturists. The prentice hand of an extensive garden, or the town worker who for the first time has taken up the task of allotment culture, each quickly find out how rapidly plant life grows where this continual stirring of the soil is persistently followed up; but all of them do not perhaps know the reason why this is so.

Here the scientist steps in, and tells them that this desire

state of affairs arises from two causes. In the first place because when the soil is loosened it is penetrated and warmed by the sun-heated atmosphere. Not only does this take place on the immediate surface, but the air forces itself to a considerable depth, carrying with it that necessary element for the promotion of quick growth—nitrogen, which is ever present in the atmosphere, and made available in the soil in the form of nitrates, through the agency of Bacteria, for the use of plants. The worker who is acquainted with these established facts must, I think, carry out his work with greater zest, because he knows how great is the sum total of good he is doing with the outlay only of pleasant labour.

With these thoughts (which may prove food for further reflection) passing through our minds, let us during the prevalence of the welcome sunshine ply our hoes in earnest among all growing crops in the kitchen garden; let there not remain an inch of ground unstirred, except it be in the seed beds, where we might stir up our crops as well. Here we must wait till the young seedlings appear: but, when they can be clearly discerned, the sooner the hoe is run between the rows the better. We have lately been plying the hoe frequently between our Cabbage plants (which have fortunately come through the winter well), and the way in which they show their approval of the timely attention by the rapidity of their growth, gives birth to feelings of satisfaction; indeed, the daily survey of a good Cabbage bed during warm spring weather may be reckoned as one of the "delights" of gardening. Our labours, however, have not been confined to the kitchen garden. Rose beds have been forked up, and the dry crumbling soil is being sweetened and enriched ready for the time when the strain comes by-and-by.

The occupants of herbaceous borders and flower beds are also springing into life with a rapidity by no means anticipated a few weeks ago. Hyacinths and Tulips in exposed positions are just unfolding their beauty, while those in more sheltered places are already beginning to fade. Beds of *Silene* and *Violas* have the surface soil stirred once each week, so as to bring them into flower simultaneously (or as nearly as possible so) with *Aubrietias* and *Myosotis*. I find much can be done in this way to regulate the time of flowering of the various plants used for spring bedding. The great aim of course is to have as many beds as possible in full flower at the same time. Whenever any particular bed is backward in growth the soil is stirred more frequently, often twice a week; on the other hand, in beds in which the plants are far in advance of the majority the soil gets but little stirring.

Then again after severe winters there is great irregularity in the growth of plants of the same species and varieties, and unless special attention is given this means a want of uniformity in the plants when in flower. In such instances I make a practice of watering weakly grown plants, then stirring the soil next day. By persisting in this simple practice so much may be done towards securing well-balanced growth.—BRASSICA.

BOTHIANA.

"The youth who hopes the Olympic prize to gain
All arts must try and every toil sustain."

PRACTICAL experience of bothy life and those who dwell in bothydom, with the important bearing this phase of a young gardener's life has on his career, induces me to think that an article upon it may prove of interest to him now, and of service hereafter. The bothy oft makes or mars a man. The youth freed from home ties, anxious to do well, equipped by thoughtful friends with some good books and much good counsel, may, with these and other advantages, still look back in after years and sigh for those opportunities which this period of life affords, and which have failed to impress their importance on him at the time. In this paper—or series of papers—I shall endeavour to supply a want felt by me years ago when treading the same critical stage of life's journey, a want which is not quite met by the best existing garden literature, nor by those valuable aids written for the students of other professions. We elders may have much or little to thank our mentors for, but it is our duty to save the younger generation some vain regrets when in the fulness of time are heard those

"Voices of the past, links of a broken chain,
Wings that can bear them back to times
Which cannot come again."

At the starting point of our journey, on which I hope we may travel together for some distance pleasantly and profitably, I need scarcely ask, Have you duly considered this path of life leading to the "Olympic prize?" Trusting that you have; that it has been to you a matter of that serious consideration it deserves; that your

heart is in the work undertaken by your hands, which cannot otherwise but be one of drudgery to end in disappointments, you have now some reason to ask when taking but a cursory glance at the present position of gardeners, with the concomitant evils resultant from overcrowding, what is this prize you are striving for, and for which so many are competing? You will probably substitute for the laurel crown of the youthful athlete the position of head gardener in a first-class establishment. Such you may at least hope for, and for such you must qualify. Yet the thought cannot but force itself on your mind that there is more than a slight danger of failure; so many good men apparently miss the prize. Apparently I say, for there is another and a higher interpretation of this prize of life which is your prerogative if you so will it. It is within your reach, and once grasped no man can take it from you. At the conclusion of these papers I hope to have thrown sufficient light to dispel the mists which may at present obscure it from view.

Too often do we hear of "lucky" men or *vice versa*. Beware! This luck is the illusive offspring of fraud. Do not believe in it. It is a "will o' the wisp" luring to apathy. Banish it out of your theory of life, and substitute for it energy and perseverance.

THE START.

You are now the new comer in the bothy. School days are gone for ever—possibly have for some time been a thing of the past. The despised school books, much dog's eared, a little tear-stained, are, I trust, in your box. It is for you to discover voluntarily that they are old friends with new faces, whereas compulsory attention previously has resulted in some enmity towards them, mingled with a little contempt which still lingers. With us, who must perforce make an early start in the battle of life, school days too often end where (figuratively) they should begin. The mind is now able to grasp, to analyse, and to perceive various truths, hitherto but partly revealed to the boy of tender years. One hour of quiet study in the bothy is worth more than a weary day dragged out on the school form. As a preliminary course of self-tuition these partly forgotten, imperfectly understood lessons, will serve to refresh and invigorate your mind. We are too apt to accord but the intrinsic value attached to such lessons, and overlook their worth as mental tonics. Moreover, "Do not pull down the scaffold poles till the building is complete."

Doubtless you have brought to your new home many good intentions and some vague ideas of profitably employing this spare time the bothy life affords. But you think it best to keep these in abeyance till a better acquaintance is made with your new comrades. If they happen to be studiously inclined, well and good, but should the reverse obtain some courage is required to overcome the diffidence ensuing. "It is the first step which costs." Here is the first, and perhaps the most serious obstacle you will have to encounter, and one too on which many good intentions are wrecked. Without waiting to see how the land lies, sail into the new port with your colours nailed to the mast. Fear not some little opposition. "Smooth water never made good sailors," nor will it on the sea of life. Enter on your new duties quietly, unassumingly, patiently observant of all that is going on around you, anxious to give of your best to those who by right expect it, nor less conscious of the responsibility attached to the time which is more or less your own, according to circumstances.

It may be thought that undue prominence is here given to this phase of bothy life, whilst its chief end and aim—viz., the working part—is ignored. But I think it may be readily granted that there is but little, if any, danger of one clashing with the other; indeed, but a little reflection will serve to show that the youth, self-controlled, contented to spend his leisure in the garden lodging, is the one most amenable to the control of those in authority and attentive to the minor duties required of him in non-working hours.

The bothy of to-day is in many places worthy of this age of progress in the gardening world, and as a bright and cheerful home for the young gardener forms an agreeable contrast to the dark, damp abode of yore, situated on the shady side of the garden wall—an aspect better suited to the culture of the Mushroom or cool Orchid than to the development of the gardener of the future. In one establishment, where I spent three years in the new bothy, almost luxurious in its spacious library, dining room, bath room, and bedrooms, nothing could more forcibly illustrate the difference between the new and old system than the new bothy we lived in and the old bothy we looked at, then converted into store rooms, with its semi-subterranean kitchens below the level of the Vine borders on the other side of the wall, the watering of which used to soak through and put the kitchen fires out. It was to us a matter of surprise that men could have lived in them, but they did, and some at least lived to make their mark in the field of horticulture.

This digression may serve to point the moral, that adverse surroundings form no barrier to mental energy, though they may present an excuse to those who are but too ready to avail themselves of one. If the will exists the way will be found. Let your journey through bothydom be such that in after years the retrospect of it will be of "the happy, the bright, the unforgotten."
—AN OLD BOY.

(To be continued.)



PHAIOS-CALANTHE IRRORATA ROSEA.

ONE of the latest results of the hybridist's skill with distinct genera was staged at a recent meeting of the Royal Horticultural Society at the Drill Hall, and received an award of merit. *Calanthe vestita gigantea* and *Phaius grandifolius* were utilised, the former being the pollen parent. Evidences of both were readily perceptible in this interesting exhibit, which was staged by Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea. The colour of the flower, the form of which is portrayed in the engraving (fig. 56), is rose shading to white at the edges of the sepals, petals, and lip.

THE SELWOOD COLLECTION OF ORCHIDS.

AS will be seen by advertisement the extensive and choice collection of Orchids, which was formed by the late G. D. Owen, Esq., at Selwood, near Rotherham, is to be sold by Messrs. Protheroe & Morris on the 24th, 25th, and 26th inst. The first day's sale includes 370 lots, the second day 375, the third day's list nearly 300 lots of Orchids, besides greenhouse plants. Several of the Selwood Orchids have been honoured by the Royal Horticultural Society, and the whole of the plants are to be sold without reserve by order of the executors of the late proprietor.

BURLINGTONIA FRAGRANS.

TO many connoisseurs this charming Brazilian Orchid is insignificant, but the delightfully fragrant flowers, the sepals and petals of which are white with a yellow tinged lip, entitle it to be grown in almost every collection. This short note is prompted by the Hawthorn scent which is emitted from the opening spikes on a small plant growing in a basket in the fernery, the compost used consisting of good peat, potsherds, and living sphagnum. During the growing season we give it abundance of water, reducing the supply as winter approaches. The plant takes little room, the leaves being only 6 to 9 inches in length, and does not require much heat during the winter, the fernery temperature often falling as low as 38°.—R. P. R.

ODONTOGLOSSUM TRIUMPHANS LIONEL CRAWSHAY.

THE appearance of the figure of this variety in your issue of April 11th, 1895, is, I think, a remarkably quick piece of work, the time occupied from the sketching of the flower by your artist to the time I received the paper at Sevenoaks by post being only forty-six hours. He had completed the sketch on Tuesday, 9th, at 2 P.M.; I received the paper at mid-day on Thursday, the 11th. I think this worth recording, and for those of your readers who "think," they will see the extremely perfect organisation with which the *Journal of Horticulture* is managed.—DE B. CRAWSHAY, *Rosefield, Sevenoaks*.

BRASSIA LAWRENCEANA.

MR. H. J. CHAPMAN writes:—"On page 287 you request my opinion on the *Brassia Lawrenceana* figured on page 275. The plant exhibited was hought some years ago, with four others, as *Brassia Lawrenceana*, and has flowered regularly under this name. It was considered by all who saw it a very fine variety, and much superior to any of the others we flowered from the same importation. The plant you figure is certainly the plant I have known for years under the name, and is at the present time in commerce as *Brassia Lawrenceana*.

"At the time it was exhibited before the Orchid Committee I did not hear any question as to its correct nomenclature. Sir T. Lawrence, Bart., was in the chair, Mr. O'Brien and other experts being present. I left the Committee while the plants I had an interest in were under consideration, so I am not in position to give you any information how the F.C.C. was awarded. Mr. Kent did not see the plant until the afternoon, when he expressed a

doubt about the plant being true, and took a flower to determine the matter, subsequently writing to Mr. Measures to say it was not the true *B. Lawrenceana* but a form of *Brassia brachiata*. I have no doubt this is correct, and the plant is now labelled accordingly; but I have sent a flower to Mr. Rolfe at Kew for final decision, and will let you know what he decides."

EPIDENDRUM FRAGRANS.

AS the specific name implies, this is a very fragrant Orchid, and on this account should be grown. The habit is that of a small growing *Cattleya*, the pseudo-bulbs being similar, and each bearing a single leaf. Pot culture in peat and moss suits it best, and it is easily grown in the *Cattleya* house. The blossoms are produced in short racemes from the top of the pseudo-bulbs. They are peculiar in having the lip uppermost, or upside down as it appears. The sepals and petals are creamy white, and the lip is streaked with purplish crimson. It is a common plant in the West Indies, and lasts a very long time in perfection.

CATTELEYA INTERMEDIA.

THIS handsome Orchid is an old species in cultivation, having been brought from Brazil as early as 1824. It belongs to the tall growing section, bearing two leaves on the top of the pseudo-bulbs, as *C. bicolor* or *C. guttata*, and when in good condition attains to a height of nearly 2 feet. It is, moreover, a free-flowering, easily



FIG. 56.—PHAIOS-CALANTHE IRRORATA ROSEA.

cultivated species, which is worthy of a place in the most select collections. The flower spikes issue from the apices of the pseudo-bulbs, and often bear from six to nine flowers each 4 inches across. The sepals and petals are narrow, soft purplish rose, the lip enfolding the column similar in colour, but with a deep violet purple blotch in front. *C. intermedia* should be repotted immediately the flowers are past in a compost consisting of good peat and sphagnum moss with abundance of rough pieces of charcoal and potsherds. Good drainage must be given, and the plants grown in the usual *Cattleya* house temperature. There are several varieties of this species, *C. i. alba* bearing pure white flowers, while those of *C. i. punctatissima* have blossoms spotted with crimson purple. *C. i. superba* is slightly different in habit to the type, and usually flowers somewhat later in the season.

CATTELEYA LAWRENCEANA.

THIS was a very valuable addition to the spring-flowering *Cattleyas*, and quite distinct from any other. The pseudo-bulbs grow nearly a foot high, and are usually of a bronzy reddish appearance with a similarly coloured leaf. The flowers are 5 inches across, and borne on strong erect spikes which spring from the previous year's sheaths at the top of the pseudo-bulbs. In its best forms these are very deep rose in colour with a purplish shade, having a deeper blotch on the lip, the throat white. This fine *Cattleya* will not usually be satisfactory in the temperature advised for the labiate group generally, but delights in a strong moist heat and plenty of sunlight while making its growth. The compost may be similar to that usually recommended for *Cattleyas*, and in other respects the treatment may be identical. Although discovered many years ago, it was not in general cultivation until 1884, when, thanks to the exertions of Messrs. Sander & Co., it was introduced in large numbers. It is a native of the mountainous regions of British Guiana, and was named in honour of Sir Trevor Lawrence.—H. R. R.

PLANT-FORMING ELEMENTS.

THE plant-forming elements have been divided by agri-horticultural chemists in two classes: (1) The organic elements, or those which appear destructible by fire; (2) Inorganic elements, or those which after combustion remain as a residue or ash. These are but general terms, for chemists recognise an element as organic or inorganic according as it is or is not a part of an organised body. Nevertheless, the plant-forming elements naturally fall into two groups, and are marked by clearly defined and widely different characteristics. The first of these elements is derived exclusively from the air, and the second furnished wholly by the soil. These two distinctive classes of elementary substances enter into the composition of plants, and both are equally essential to their life and growth.

The elements derived from the air are carbon, hydrogen, oxygen, argon, and nitrogen. These are the chief constituents of plants, forming from 95 to 99 per cent. of their entire weight, and in process of burning pass off into the atmosphere in the form of gases. It is clear, therefore, that plants must derive the organic elements directly from the atmosphere in gaseous form, but it must not be supposed that the air-derived elements are always obtained directly from the air, for the amount of organic substances present in the soil, especially when highly cultivated, is considerable, as the air-derived elements there combine with inorganic substances to form chemical compounds, and as such are imbibed by the roots of plants.

The organic elements enter plants by the roots in combination with the inorganic in the form of sulphates, phosphates, nitrates, and chlorides of potassium (potash), calcium (lime), magnesium (magnesia), and iron. These salts enter plants by the absorbent surfaces of the roots, pass upwards through the stems to the leaves and new-forming buds, and the leaves gather carbon dioxide gas from the air, which is decomposed under the action of the sun's light; its carbon remains in the plant, and the oxygen, or very nearly an equivalent quantity, is given off into the air again. By means of the carbon so acquired, and the elements derived with water from the soil, the plant is able to organise the carbohydrates, their formation proceeding in the chlorophyll cells, and the first product detected by the microscope is the starch granules; but chemically the glucoses are the first products of the synthesis.

The albuminoids cannot be produced without nitrogen, and very little of that is derived directly from the atmosphere; indeed, it is practically unassimilable by plants. Even the atmospheric nitrogen largely collected by leguminous plants is inappropriate for them until converted by a micro-organism of the bacterial class into assimilable matter; therefore, plants derive their supplies of nitrogen from the soil in the form of nitrates or salts of nitric acids. Fats, alkaloids, and acids are built up from the same food elements. The steps in the construction of organic matters are, in most cases, unknown or of uncertain conjecture. All we know for certain is that the carbohydrates and albuminoids are organised in the leaf, transformed into its substance, and thence transmitted to every living cell of the plant, which has, within certain limits, a power of selecting its food, preference being given by most to potash before soda. Even seaweed contains more potash than soda, yet sea water contains twenty-five to thirty times more of the latter than the former. Notwithstanding, plants cannot wholly reject substances that are of no use or even poisonous to them. Plants, however, are seldom poisoned by rejected matter, as cultivated soils, by the influences of aëration, chemical and physical qualities, render such more or less insoluble, consequently proportionately innocuous.

The atmosphere is practically invariable in its composition, hence its functions are essentially the same towards plants. The soil, on the other hand, is variable in composition, and has offices peculiar to itself. Thus it can be improved and enriched, and in consequence of a certain plant appropriating a given element larger than another it may be deteriorated or exhausted.

Crops cannot derive appreciable amounts of the elements found in their ash from the atmosphere, but the soil may accumulate the air elements by the waste of crops and animals, such as carbon dioxide and nitrogen, the last being chiefly supplied to plants by the soil, which is formed therein as nitrates from various sources, while the ammonia salts supply nitrogen to vegetation. Hydrogen and oxygen are supplied in the water which the roots of plants imbibe; indeed, it is from the soil that the plant gathers all the water it requires, and is the vehicle by which it receives the soil-derived elements, being the fluid medium of its chemical and structural transformations.

The elements furnished to plants exclusively from the soil are: Non-metals—sulphur, phosphorus, silicon, and chlorine; metals—

potassium, sodium, calcium, magnesium, iron, and manganese. These soil-derived elements all occur in plants in small proportions, and vary in amount from a fractional part of 1 per cent. to 10 or 12 per cent., but though the proportions are small, they, or some of them, are as important as the more abundant organic elements; indeed, both are equally essential in the formation of plant tissue. The inorganic substances of plants are ascertained by an analysis of the ash of the respective species or variety, the mineral matter remaining as residue when plants are burned. But the combustion is always more or less incomplete, so that in the ash there remains minute amounts of carbon, oxygen and nitrogen, and slight traces of chlorine, phosphorus, and sulphur are known to be given or dried off in the heating, yet the amounts are very small in either case. An analysis of the ashes of a plant therefore affords a safe guide as to its requirements of soil and manure, and that of the whole elements known to chemists not more than one-fifth are needed by plants for the building up of their structures. Four—carbon, oxygen, hydrogen, and nitrogen—of the fourteen elements are derived directly or indirectly from the air, and constitute over 90 per cent. of all vegetation, consequently the atmosphere is a sort of aëriform food-supplying medium, which plants imbibe as gases, yet these air-derived elements are not more important factors in vegetable nutrition than the soil-derived substances that occur in much smaller amounts, for both are essential to the healthy development of plants, and of equal importance in plant economy.

Over the air-derived elements the cultivator has practically no control in outdoor culture, and it is doubtful if ammonia in glass structures has any more than a fancied beneficial effect upon vegetation. Of course, all growers know that decomposing matter, such as leaves, cocoa-nut fibre refuse, mulchings of manure, and even sprinklings of liquid manure, produce atmospheric conditions more or less beneficial to vegetation, but whether this is due to the gases evolved or the uniform hygrometrical state of the atmosphere is not determined beyond uncertain conjecture. Free nitrogen is of no use whatever to plants, not even to leguminous, but vegetation assuredly profits by the ammonia and nitric acid in rain water, yet who can tell how these in fluid form can enter plants other than through the roots? Epiphytes certainly appropriate the ammonia and nitric acid of the atmosphere, but it is by their aerial roots, not the leaf surfaces.

Nitrogen in the soil, or in a fertiliser, is never present in the form of nitrogen gas, but exists in combination with some other element or elements, yet chemists in their analyses determine, without regard to the form, how much this combined nitrogen would amount to if it were present in the form of pure nitrogen gas. It may be in the form of ammonia, as sulphate; in the form of organic nitrogen, as in animal or vegetable substances; or in the form of nitrate, as nitrate of lime, potash, or soda. Ammonia is a compound formed by the chemical union of nitrogen with hydrogen, fourteen parts of nitrogen uniting with three parts of hydrogen to make seventeen parts of the element called ammonia, consequently 1 lb. of nitrogen will make 1.214 lbs. of ammonia. Each pound of ammonia contains a little less than two-tenths of a pound of hydrogen, and this has value only in that its combination with nitrogen forms a compound more readily assimilable by plants. Hydrogen is present in all animal and vegetable substances, and forms an essential constituent of acids. It combines with oxygen to form water, of which it forms one-ninth by weight, being the lightest of all known substances. Atmospheric air is about fourteen and a half times heavier than hydrogen, but by its combination with oxygen it enters the plant in the soil waters, and its property is to make plant food more easily assimilable.

Nitrogen constitutes about four-fifths of the bulk of the earth's atmosphere, and in its free condition manifests no positive or active properties. Plants cannot live if confined in an atmosphere of nitrogen gas. The nitrogen and oxygen of the air are a mere mechanical, not a chemical, mixture, the nitrogen assumedly modifying the action of the energetic oxygen. Although nitrogen is an essential and constant constituent of plants, and the atmosphere a great reservoir of this element, there are few plants that can appropriate it from the atmosphere, and it would not be of any use to them without the intervention, within the tissues, of certain micro-organisms, which convert it from free into assimilable nitrogen. This element is also present in soils, but it exists in these in a comparatively inert and useless state. The humus of soils is a source of nitrogen, peat often containing 2 or 3 per cent. Of this nitrogen, as gas, plants can make no use, for it is only the nitrogen, combined with other elements or their compounds, that is assimilable by vegetation. As such nitrogen exists in soils and in the form of nitrates, compounds of ammonia, or combined with organic matter, and of these the chief source of immediately available nitrogen is the nitrates, then the ammonia, and very slowly that of organic matter.

* Silica and sodium salts are omitted as unessential, from a manurial point of view, to the growth of plants.

But chemists neglect nothing in air or soil, and physiologists turn their researches to effective purposes. Thus the outcome is of material advantage to cultivators, who are able to comprehend that plants appropriate nitrogen (1) as the free nitrogen gas of the atmosphere, (2) in the form of ammonia, and (3) in the form of nitrates. Free nitrogen gas costs nothing, and the stores are practically inexhaustible. The cultivator gathers it from the atmosphere by means of leguminous crop—Beans, Clover, Peas, Tares, and others, gets it into the soil, where it is converted by the action of the nitrifying micro-organisms, in presence of certain bases, into nitrates. These bases are essential for the activity of the micro-organisms within the plants or their root tubercles that convert free into assimilable nitrogen, so as to render it available for use; and they are equally important for stimulating those in the soil for effectively producing nitrates equal to the crop requirements. Such bases are present in most soils and in nearly all plants for the normal growths of the micro-organisms; but they are unquestionably deficient in some soils, and, of course, plants for the requirements of cultivated crops. The chief of the elements needed by the micro-organisms in the soil or plants are lime and potash. Leguminous plant and soil micro-organisms cannot act to the fullest profit to crops without the essential lime or potash, hence potassic manures accelerate the growth of leguminous crops, not by simple chemical process, but by the compounds formed by the action of the micro-organism duly supplied with food or material for manufacture into nitrates.—G. ABBEY.

(To be continued.)

THE ROYAL HORTICULTURAL SOCIETY'S EXAMINATIONS.

THIS annual function is fixed for May 1st next, hence intending candidates have to make the most of their time, as the date is very near. As notice of intention to sit for this examination had to be sent in by the 16th inst., it is obvious that any purposing to sit, and not having given notice, are too late. It is very evident that stimulus towards securing country candidates for the examination cannot be largely applied from London, and only where there exist bodies that have affinity to the object can any material interest in the examination be looked for. Naturally, seeing how many thousands of gardeners there are in the United Kingdom, and how many other persons there are outside of the profession greatly interested in horticulture, no difficulty should be experienced in securing fully 1000 candidates, yet no such number is looked for. Possibly they may not exceed 250 or 300.

Then it is natural to ask why so few relatively. There is no lack of knowledge or of literary capacity, as ample evidence is furnished in other directions. Probably the comparative lack of candidates is due to innate modesty, lack of interest, or to inappreciation of the honour that passing in such an examination furnishes. But I think the chief cause is found in that first named, and of that we have evidence in the county of Surrey, because whilst that county does, as a rule, furnish the largest number of candidates, that result is almost entirely due to the County Council Technical Education Committee and the strenuous efforts put forth by its horticultural instructors, not only to diffuse gardening knowledge but also to arouse interest in the R.H.S. examinations.

During the past winter lectures on flower, fruit, and vegetable culture have been delivered in various parts of the county, to persons of all classes. With a view to encourage members of the classes to practise the art of committing their knowledge to paper, in the form of answers to questions—practice most helpful to any purposing to sit on May 1st—a series of twelve printed questions, arising out of each lecture, was handed to each person present at a class; members then took the questions home, and were invited to furnish replies to the best of their ability during the week, and hand them in at the following lecture, or send them by post. It was expressly desired that each answer have against it the corresponding number attached to the question, and that all writing be on foolscap paper, and on one side only—name, address, and occupation of the writer being also furnished. Some persons boldly took all the six lectures in a course, others took fewer, but out of the entire number of classes some 380 papers were sent in, about one-half coming before Christmas, and the others afterwards.

It need hardly be said that going through all these papers—for not even the poorest, some coming from lads, some from labourers, some from ladies, some amateurs, schoolmasters, and some from gardeners, was ignored—proved to be a very onerous task. Every answer, and there were several thousands, was fairly and impartially appraised at its proper worth. A tabulated statement of the results was made, and then the whole of the papers were returned to the numerous writers, every one of whom who showed fair merit—a good percentage—being afforded an opportunity of entering for the R.H.S. examination. More it was very difficult to do, but it is evident that were as much done in every county in the kingdom the result might be remarkable.

Of course it is not concluded that attendance at a course of lectures on one section of horticultural work only qualifies to sit for the R.H.S. examination. That would be too absurd. But it is easy for any intelligent person going through the answers sent to the lecture questions to

find that many of the writers had both wide and sound practical knowledge, and if they sit must come out with honours. But then it is found, as a rule, that the greatest disinclination to enter is evinced by the most competent, while others, who have the smallest capacity for answering questions intelligently, have not the slightest hesitation in giving their names as candidates. Another instance of the sometimes too close alliance of modesty with ability, and the reverse. In some cases the replies were excellent, could hardly have been better, but then these were from gardeners. Most interest attached to the work of amateur members of the classes, and especially to that of ladies and lads, some of them showing remarkable capacity and knowledge.

It need hardly be said that the Surrey C.C. lecturers realise the very great difference existing between the examinations they conduct and those of the R.H.S. In the local case every question is of a practical nature, and arises absolutely out of the lecture. There is no catch question, no botany except of the most elementary kind, and nothing abstruse. Nor is there anything which has the least semblance of cramming for exams. The subjects chosen are those likely to be the most useful to the audiences, the syllabus differing entirely from that of the R.H.S., which would not meet the local requirements, though naturally much of the teaching is generally applicable. The R.H.S. exams practically demand much study of expensive text-books, such as very few can afford to purchase, and test the very widest knowledge of horticulture, theoretical and practical. In the other the exercise is a test of what lecturers teach, and that only. All the same, as a preparation for the national examination, no course can well be more serviceable than is that taken in Surrey.

It is very probable that even greater interest would be taken in these county examinations were there added to them the stimulus of some prizes or certificates. A suggestion has been made that the Technical Education Committee may be induced to offer for the best papers another winter some prizes in the form of good gardening books. It need hardly be said that such course would be hailed with great satisfaction by both lecturers and members of the classes. Of course, it would then be needful to submit the papers of answers to lecture questions sent in to some independent examiner, and also so far to divide the classes, that gardeners and amateurs should not in a sense compete with each other. That the effect would be largely to stimulate interest in the lectures, and in encouraging replies to the questions arising out of them, there can be no doubt. But all the same, the examination that would carry the greatest weight, and have for successful candidates the highest honour, certainly is that of the Royal Horticultural Society.—A. R.

I HAVE read with much pleasure and interest the remarks of "H. O. H." (page 290, April 4th) in the Journal respecting the above subject, and can fully endorse his views of what should constitute the principal abilities of a good gardener—viz., a thorough practical knowledge, gained not by theory, but by a life spent in putting his hands to all the details of his vocation with a desire to attain knowledge—not building his hopes of success on what he knows theoretically, but ever bearing in mind that proficiency is the result of studious perseverance in observing with a keen interest all that comes under his notice relating to the occupation in a practical way.

Anyone with a literary turn of mind may collect books that will furnish particulars enough to enable him to pass an examination on all branches of gardening; but all the same, that is no test of his abilities as a thoroughly practical man. Book learning is really necessary, and who is complete without it? yet it cannot take the place of sound practice. The present day needs men who have made gardening a deep study in every way from their earliest time, who have brought themselves up in all the smallest details, who have done the work and who know when those under them are doing the same in a practical way, to be able to economise and arrange matters to make up for inadequate labour power to meet the requirements of the case.

I would heartily commend to the notice of every young gardener the last paragraph of "H. O. H.'s" article, and ask everyone to peruse it carefully and intelligently, as it is much to the point.—A. KEMP, *Coalhurst, Horsham.*

SPINACH.

I WAS very glad to see "A. D.'s" remarks respecting this vegetable on page 298. The past winter, as most gardeners know, has been a severe test for vegetables, but the Spinach has come through the ordeal as well as any. The cause, no doubt, is that being a low-growing plant, the snow covering it during the greatest severity protected it well.

I find that one sowing in the autumn is not sufficient. I therefore have for some years now found it advisable to make two. The first is early in August, generally in the open quarters from whence early Potatoes have been cleared. This gives a crop from the middle of September to Christmas and onward through the winter, should the weather prove open and mild. The second sowing is made the last week in August or not later than the early days of September. This will be of no use to pick from till the spring, but often withstands frost better than the plants from the first sowing, and comes in very useful from April to June, when the spring-sown follows on.

The seeds are sown very thinly in drills, and as soon as the young plants are through the ground they are thinned to 6 inches apart, for it is of no use leaving the plants packed together if fine sweet leaves are required. When grown in this manner a basketful can be picked in

much less time, and will give much more satisfaction than a number of thin, small leaves.

For many years now I have only grown the round-seeded, and have never been without Spinach either in the autumn and early spring. The prickly-seeded is no doubt as hardy, but I prefer the former, as I have generally found it to produce larger and broader leaves.—A. HARDING.



EVENTS OF THE WEEK.—Two meetings will claim the attention of London horticulturists during the coming week. At the Drill Hall, Westminster, on Tuesday, the Committees of the Royal Horticultural Society will meet, and a good show is expected; while on the Wednesday the Royal Botanic Society holds its second spring show. In the provinces there are at least three shows of interest, each opening on the Wednesday—namely, the Birmingham Daffodil and Horticultural Society's Daffodil Show, in the Edgbaston Botanic Gardens; the Newcastle-on-Tyne Spring Show, in Olympia, Northumberland Street; and the Chesterfield Spring Show, at Tapton Grove.

— **THE WEATHER IN LONDON.**—Fine weather, with bright sunshine, has prevailed in the metropolis during the past week. Thursday and Friday last were warm and genial, but a cold easterly wind which afterwards set in has marred to some extent the pleasure of holiday makers, also checking the growth of vegetation which former favourable conditions had encouraged.

— **WEATHER IN THE NORTH.**—Since Wednesday, the 10th inst., which was cold, gusty, and showery, there has been a great improvement in the weather. Although the wind has generally been easterly and sharp, there has been abundant sunshine. On a few mornings frosts of 4° and 6° have occurred. Farm and garden work is being vigorously pushed on.—B. D., *S. Perthshire*.

— **ROYAL HORTICULTURAL SOCIETY.**—The next meeting of this Society will be held in the Drill Hall, James Street, Westminster, on Tuesday, April 23rd. In addition to the Society's ordinary show the National Auricula and Primula Society will hold its annual show. At 2.30 P.M. a Conference on Primulas and Auriculas will be held in the Hall. Prof. Michael Foster, F.R.S., has promised to preside, and the following papers will be read:—"New Primulas," by Mr. J. G. Baker, F.R.S.; "Culture and Classification of Primulas," by Mr. Selfe-Leonard; and "The Auricula," by Mr. J. Douglas. By way of illustrating the Conference the Council will be glad of exhibits of as many different natural species of Primula as possible.

— **PRIZE ESSAY ON HARDY FRUIT GROWING.**—We are requested to publish the following announcement:—"The Council of the Royal Horticultural Society of Great Britain offer a prize of £10 for the best essay on 'The Commercial Aspect of Hardy Fruit Growing in the United Kingdom.' The essay is not to exceed 10,000 words, to be sent under seal to the Secretary of the Society, 117, Victoria Street, Westminster, on or before August 1st, 1895, each essay to be signed with a motto, and the writer's real name and address enclosed in a sealed envelope bearing the same motto outside, the prize essay to become the sole property of the Council of the Society to deal with in any way they may think fit. Unsuccessful essays will be returned after October 1st, 1895, on application, enclosing the necessary postage, and the motto of the writer."

— **BEAUTIFUL VIOLETS.**—When we think of the beauty, the fragrance, and hardiness of the Violet, the wonder is that it is not grown far more abundantly. I am sending a few blooms, for your inspection, of a variety that has recently originated in my garden. One shoot came on a plant of Comte Brazza's White Neapolitan, although the foliage on the plants from whence the flowers were gathered was very much scorched with the severe frosts in January and February. Still you will be able to see from the size and colour of the blooms what a fine variety it is. It seems to be the very counterpart of the old Neapolitan, but a much stronger grower and larger flower.—NORTH NORTHUMBRIAN. [The variety is excellent, the flowers being large, of good substance, and deliciously fragrant.]

— **RODMERSHAM AMATEUR AND COTTAGE GARDENERS' ASSOCIATION.**—We are favoured with a schedule of this Society, giving details of classes and prizes offered at the eighth annual show. The exhibition will be held in the grounds of Rodmersham House on August 28th and 29th. Schedules and further particulars may be had from the Secretary, Mr. T. H. Busbridge, Rodmersham, Sittingbourne.

— **LONDON'S LATEST LUNG.**—Telegraph Hill, the new open space which has been laid out by the Parks Committee of the London County Council, was recently dedicated to the public. Mr. Arthur Arnold, Chairman of the Council, said it was his privilege to plant the standard of public possession and public freedom—and on behalf of the Council of the County of London, he declared these gardens to be open for ever for the health and recreation of the people.

— **ALMOND TREES.**—The geniality of the weather we experienced some days since is shown on the several Almond trees now flowering so profusely in many parts of the metropolis, and form a pleasant spectacle. It is a tree that might well be planted far more extensively in the gardens of many new houses that are being erected round London, as it cannot be denied that they tend, perhaps more than any other tree, to brighten our murky town in the spring.—LONDONER.

— **THE WILLIAM THOMSON MEMORIAL FUND.**—We are informed that it has been proposed to close this Fund on May 1st, and therefore all intending subscribers, which we trust will be many, should forthwith send their contributions to any of the following members of the English Executive Committee, of which Mr. H. J. Veitch is Chairman:—Messrs. A. F. Barron, Chiswick; Bruce Findlay, Manchester; J. George, Putney; P. E. Kay, Finchley; G. Monro, Covent Garden; G. Norman, Hatfield; F. Sander, St. Albans; J. Smith, Mentmore; R. Tait, Manchester; O. Thomas, Frogmore; H. Williams, Holloway; G. Wythes, Syon House; or J. G. Veitch, Honorary Secretary, Royal Exotic Nursery, King's Road, Chelsea, S.W. We may remind our readers that the object of the Fund is to honour the memory of one of the most accomplished of gardeners and best and most respected of men, and at the same time aid afflicted gardeners and orphan children through the agency of the Gardeners' Benevolent Institution and the Royal Gardeners' Orphan Fund, in which charities the amount subscribed will be invested.

— **FUMIGATING—THE LATEST.**—Soon the worry and anxiety that insects have hitherto caused us in our plant houses will be a thing of the past. The XL All vapourising fumigator is certainly far in advance of anything I have used. Two dressings of the highly concentrated nicotine that is thrown off as vapour will kill mealy bug. I do not say two fumigations are ample to clear a house of bug altogether, but it will destroy all the active insects. I consider this a distinct step onwards. Those who have mealy bug in their vineries have now within easy reach material by which it can be eradicated. I have hopes that while it will destroy mealy bug it will also exterminate the small scale that infests Palms. The time spent in removing this pest from Palms has always been a source of trouble to me, day after day being used in sponging, and to little or no purpose. If nicotine vapourised in our houses will accomplish this we need not hope for greater progress in this direction. I may add that tender young fronds of *Adiantum cuneatum* in the house were not injured by the applications which killed the mealy bug.—WM. PARDNEY, *Osmaston Manor*.

— **VIOLA CONFERENCE.**—As the "master hand" who planned and guided the Viola Conference at Birmingham last August has been called away by death the duty devolves on me of arranging what is to be done this year. I am afraid that the loss of Mr. Dean is one which is almost irreparable. Who will be so willing, so capable, so enthusiastic, and so disinterested? I know not. Mr. William Sydenham has written to me urging the arrangement of a Conference for Tamworth or Birmingham. Mr. Rowberry thinks that Mr. Dean's death will mean the removal of the Conference meeting to London, and I know this opinion is shared by several others. On the other hand, I think Professor Hillhouse, from what passed last year, will be expecting the Conference to assemble at the Birmingham Botanical Gardens on the occasion of the Pansy and Viola show there. I know this was also Mr. Dean's expectation. My object in writing to the Journal now is to ask those who are interested in the matter to write me briefly, expressing their views as to where this year's Conference should be held and when. An effort will then be made to arrange it to suit the majority of those interested. If sufficient interest is not manifested it may become a question if there should be a meeting at all.—WILLIAM CUTHBERTON, *Springfield, Rothsay*.

— SCOTTISH HORTICULTURAL ASSOCIATION.—A meeting of the Scottish Horticultural Association was held on Tuesday, April 2nd, at Edinburgh, Mr. R. W. E. Murray, President, in the chair. An interesting and instructive paper on "Eucharis and Pancratiums" was read by Mr. D. L. McIntosh, Kingsmeadows, Peebles.

— "THE AMERICAN FLORIST."—We have recently received a copy of the special spring number of this excellent American publication. It contains articles on the arrangement of flowers and other practical and useful subjects, almost all of which are admirably illustrated. The printing and the paper leave little to be desired, while the outer page of the cover representing a floral arrangement is a real work of art.

— NEPHROLEPIS DAVALLIOIDES FURCANS.—This is one of the most beautiful of all Ferns when used as a pot or vase plant, having broad, furcated, glossy leaves, and a massive, full, arching head. When cut the fronds last well, look handsome, and are much appreciated for table and vase decoration when large fronds are required; for small vases, hand bouquets, and the like, of course they are far too large. When cut they may be immersed in a tub or tank of water for two or three hours before using.

— METROPOLITAN PUBLIC GARDENS ASSOCIATION.—At a recent meeting of this Association it was decided to open to the public, towards the end of May, the disused burial grounds of St. Peter's, Walworth, and St. Mary's, Woolwich, lately laid out by the Association. Attention was drawn to cases of building operations on disused burial grounds in apparent contravention of the Disused Burial Grounds Act, 1884, and it was decided to take steps to insure a full inquiry into each case. It was decided to prepare plans for the laying-out of Bromley Churchyard and St. Stephen's school ground, Bow.

— THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—The annual dinner of the above Society was held on Tuesday, April 9th, when the President of the Society (W. J. Wharwick, Esq.) took the chair, about sixty members and friends being present. After the dinner Mr. Wharwick gave a short address, expressing the pleasure it was to him to be amongst the Hessle gardeners, where, he said, he always felt thoroughly at home. The usual toasts were proposed, and duly responded to. An excellent programme of songs, provided by "The Kingston Quartett Party," contributed largely to the evening's enjoyment.—F. L. T.

— AMERICAN APPLES.—The exports to date of Apples during the season of 1894-95 aggregate 1,443,592 barrels, against only 168,706 barrels during the previous season of 1893-94. The record season in the export Apple trade was that of 1891-92, when, as was the case this season, the English Apple crop also failed. In that season 1,450,336 barrels of Apples were shipped abroad as follows:—From New York, 537,247; Boston, 339,964; Montreal, 320,427; Portland, 163,145; Halifax, 87,379; Philadelphia, 550; Baltimore, 72; Newport News, 1337; Norfolk, 215. The export season usually begins about August 15th and ends about April 15th. The total quantity of Apples shipped in the season of 1891-92 is now only 3738 barrels more than have been shipped thus far this season. When all the returns are in for this season it will probably beat all previous records.

— THE SLEEP OF PLANTS.—The sleep of plants is so conspicuous a phenomenon that it excited discussion and speculation as early as the time of Pliny, and many explanations were given, which science has since disproved. The drooping of the leaves was attributed by some botanists to an aversion to moisture, a theory which had to be abandoned when such movements were made on cloudy days and dewless nights. The Clover tribe, which always close their leaves at night, revel in rain, and Nasturtiums will go through a day of tempestuous weather without showing any inclination to change their position. Linnæus was the first to give to the subject special study and scientific research. While watching the progress of some plants of Lotus, he began that series of observations on which his great work "Sleep of Plants" is based. He found that nocturnal changes are determined by temperature and the daily alternations of light and darkness. Movement is not actually caused by darkness, but by the difference in the amount of light the plant receives during the night and day. Many plants, notably the Nasturtium, unless brilliantly illumined in the day, will not sleep at night. If two plants, says the "Rural World," were brought into the centre of a room, one from the open air and the other from a dark corner, the neutral light which would cause the former to droop its leaves would act as a stimulant on the latter.

— DEATH OF MRS. M. I. WATSON.—It is with deep regret that we learn the death of the wife of the well-known Assistant Curator, Royal Gardens, Kew, which took place April 6th, at the age of thirty-six years.

— "THE NATURAL HISTORY OF PLANTS."—We have received from Messrs. Blackie & Son the twelfth number of this highly interesting publication. The question of fertilisation has now given place to the discussion of the fruit, and the infinite variety of aspect assumed by the fruits of various plants is presented realistically in a large number of illustrations. The volume has prefixed to it, as usual, a coloured plate, the subject in this case being a group of West Indian Orchids.

— A BOTANICAL GARDEN FOR NEW YORK.—It begins now to look, says a transatlantic contemporary, as if the great city of New York is at last to have a botanical garden—it only remains to raise 45,000 dols. more, when the work will actually begin. Broux Park has been wisely selected as the place for its location. Too much cannot be said in favour of this addition to the attractions of New York. Its educational value would be inestimable, and it would constantly become more and more interesting and valuable as the years go by.

— CLIANTHUS DAMPIERI.—As a greenhouse climber no one can speak too highly of this plant. The flowers are not only curious in shape (resembling that of a lobster's claw) but are exceedingly attractive when the growths are allowed to hang down from the pillars or the roof to which it is trained. When planted in a cool shady corner it is astonishing what an amount of growth this plant will make in a season. It is even easier to cultivate than the Lapageria, but where the two can be grown the roof of a conservatory may be kept ablaze all the winter months, and when once established the plants are little trouble. They require abundance of water in the growing season, and also syringing twice a day. If the north side cannot be devoted to them it is advisable to shade them rather heavily in the summer, or red spider is sure to attack them. We have a huge plant of Clianthus here now in full flower, and it would be useless to attempt to count the clusters.—GEO. BURROWS, *Warwick School*.

— CYCLAMENS, PRIMULAS, AND CINERARIAS AT ALTRINCHAM.—It may perhaps not be generally known that something like 5000 Cyclamens are grown and flowered annually in the establishment of the enterprising firm of Messrs. Clibran & Sons. The strain is excellent, the result of careful hybridising. The plants are very dwarf, and furnished with handsome foliage and flowers in great diversity of colour. The Pure White is a giant flowered variety, very free and a great acquisition. Primulas are equally imposing in two very large houses. Amongst the singles Clibran's Red, Crimson, White, Rose, and Ruby Red, have flowers of the first size and quality, some measuring over 2½ inches across. King of Crimson, raised by the firm, is not yet in commerce, but has a glowing future before it. Oldfield Blue, Rose Beauty, Princess of Wales, and Avalanche are also grand varieties. In the doubles, Firefly, deep crimson; Mrs. Clibran, rosy peach; and Snowflake, the largest pure white in the collection, are all superior. Other well tried sorts, such as Candidissima, Alba grandiflora, Earl of Beaconsfield, Marchioness of Exeter, Stewarti, and Princess of Wales are largely grown, their value for affording flowers being well known by many cultivators for cutting. Cinerarias are just coming into flower, the growth is sturdy and dwarf, with flowers of superb form and colour.—A VISITOR.

— THE FLOWERING OF BULBS.—In spite of the many predictions that such bulbous plants as Snowdrops, Crocus, and Narcissi would not give such a full crop of blossom this year, I find the results are in contradiction to this theory. The excessively wet and cold summer and autumn perhaps justified the prophecy, but these prophets appear to have forgotten that the weather during April, May, and June—just the season when the embryo flowering state of the bulbs is prepared for next season's display—was quite favourable to a full flower crop. During the three months named we had an average rainfall of a little over 2·00 inches, which certainly could not be unfavourable to the harvesting of the bulbs. Throughout the period named high temperatures were recorded. These are circumstances, I take it, favourable to the flowering of bulbs the following season, irrespective of what the late summer or autumn may be. I do not think I ever remember seeing the ordinary Snowdrop in its wild state in the woods and hedge-rows blossoming so strongly as at the present time. In the poultry yard here some thousands are growing, and wonderfully fine are the flowers and leaves. Crocuses, too, growing in many thousands on a grassy plot, in spite of the thick covering of moss, are wonderfully fine this year.—E. MOLYNEUX, *Swanmore Park*.

— TONS OF CATERPILLARS. — According to a contemporary 36 tons of caterpillars and a large number of cocoons were destroyed in the effort to drive the pest from the young plantations of trees on Hongkong Island. They appeared on the Pine trees with which the Government is trying to reforest the island, and lasted for two months. Stations were established where the caterpillars were received and paid for by weight; this method seems to have been successful. It is estimated that 35,000,000 insects were killed.

— WAKEFIELD PAXTON SOCIETY. — At the weekly meeting of this Society, held on April 6th, Mr. W. Tunncliffe presided, Mr. B. Whiteley was in the vice-chair, and there was a good attendance. After the election of new members, Mr. J. W. D. McPherson, B.A., one of the assistant masters at the Wakefield Grammar School, delivered a very lengthy and most interesting lecture on "Trees." Mr. McPherson spoke for an hour and twenty minutes without note or memoranda, and his excellent and instructive lecture was most attentively listened to and very warmly applauded. He dealt with his subject in a most exhaustive and thorough manner. After pointing out the absolute necessity of fresh air and sunlight in order that trees may flourish and be properly built up, the lecturer dwelt on the importance and value of trees from a sanitary point of view. The superstition which prevails with regard to the Ash, Oak, Maple, Sycamore, Hawthorn, Mountain Ash, and other forest trees, was dilated on in humorous terms, the lecturer remarking that many persons believe that a sprig of Mountain Ash will keep witches away. At the close the lecturer was heartily thanked.

— MEDICAL ACTION OF VEGETABLES. — The "Family Doctor," in the course of an article on the medical value of vegetables, says, "Asparagus is a strong diuretic, and forms part of the cure for rheumatic patients at such health resorts as Aix-les-Bains. Sorrel is cooling and forms the staple of that *soupe aux herbes* which a French lady will order for herself after a long and tiring journey. Carrots, as containing sugar, are avoided by some people, while others complain of them as indigestible. With regard to the latter accusation, it may be remarked in passing that it is the yellow core of the Carrot that is difficult of digestion—the outer, a red layer, is tender enough. In Savoy the peasants have recourse to an infusion of Carrots as a specific for jaundice. The large sweet Onion is very rich in those alkaline elements which counteract the poison of rheumatic gout. If stewed slowly in weak broth and eaten with a little Nepaul pepper, it will be found to be an admirable article of diet for patients of studious and sedentary habits. The stalks of Cauliflower have the same sort of value, only too often the stalk of a Cauliflower is so ill-boiled and unpalatable that few persons would thank you for proposing to them to make part of their meal consist of so uninviting an article. Turnips, in the same way, are often thought to be indigestible and better suited to cows and sheep than for delicate people; but here the fault lies with the cook quite as much as with the root. The cook boils the Turnip badly, and then pours some butter over it, and the eater of such a dish is sure to be the worse for it. Try a better way. What shall be said about our Lettuces? The plant has a slight narcotic action, of which a French old woman, like a French doctor, knows the value, and when properly cooked is really very easy of digestion."

— THE BIRMINGHAM GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION. — The last of the fortnightly meetings for the spring session of this Society was held on the 8th inst., when the essays on "Hardy Fruit Culture," and for which prizes in the shape of books on horticulture had been offered, were read by the competing young gardeners. The essays, of which there were eight, had been previously perused by the Committee to adjudicate on for the award of the four prizes offered. As on the last occasion, it was decided that each competitor should read out his own paper at the meeting, in preference to the whole being read by one of the Committee, an arrangement obviously preferable to the latter mode, and which had been adopted on one or two prior occasions. The first and second prize papers especially evidenced considerable ability on the part of their compilers, as in addition to a suitable preface, followed by thoroughly practical cultural details, including a selection of varieties of from six to eight kinds of fruit, and the gathering and the storing of the crops, they were further characterised by the very good composition and distinct sentential arrangement duly notified by the adjudicators. A word of praise must also be awarded to non-successful competitors for their fairly good compositions, excepting perhaps one or two who evinced a certain lack of scholastic tuition, which marred their otherwise fairly good efforts. The successful competitors were respectively Messrs. F. Milaxis, H. Wilson, F. Cox, and "Fragaria," the *nom de plume* of the fourth prize man, and whose

name could not be ascertained at the time. At the same meeting it was decided that the annual summer excursion of the members, with their wives or other lady friends, should be to Penrhyn Castle and the Penrhyn Slate Quarries in North Wales.—G.

— VEGETABLES FOR NEW YORK. — New York is supplied with vegetables from many sources outside of that produced by the local gardeners. Thus about 300 crates of Tomatoes arrived by steamer from Nassau in March, also 105 barrels Cabbage from Rotterdam. Bermuda Potatoes are arriving in small parcels, but the crop is of poor quality, lacking in size and colour. Florida Lettuces and String Beans sell fairly well. Virginia truck gardeners recently sent by one steamer 5000 packages vegetables, mostly Spinach and Kale.

— HEATING VINERIES. — In Mr. Taylor's admirable article on the subject of heating vineries there is one point to which I take exception. He says, "If there are five pipes two should be flows and three returns, or *vice versa*." I do not take exception to this part merely on supposition, but from actual practice. In two of our vineries we have six rows of 4-inch pipes, five being flows and one a return. Nothing could possibly be better than the easy way in which the water circulates through all the pipes. The five flows are taken at a right angle from the main. Having such a number of outlets for the water is all in favour of a quick circulation, the one return pipe being continually and regularly fed in carrying the water back to the boiler. In our case the water has only to travel once through the house before being conveyed back again to the boiler. As Mr. Taylor rightly remarks, all flow and return pipes should be fitted with valves. In many instances that I am acquainted with valves are not put on the return pipes. The consequence is that during the winter, when heat in a particular house is not required, the water "backs up" through the return pipe, and is a source of trouble. In addition to this, if both flow and return are fitted with water-tight valves the water is easily maintained in the pipes in the case of a breakdown to any part of the apparatus.—E.

— ROYAL COMMISSION ON AGRICULTURE. — The following evidence was given by Mr. J. K. Woodward, market gardener at Evesham, at the last meeting of this Commission:—He stated that until September, 1894, he occupied 106 acres as a tenant farmer, but he now occupied a market garden of 6 acres, and employed two men. The market gardens of Evesham and district extended to nearly 8000 acres, and were mainly cultivated as spade industry, all land planted with fruit trees and bushes and Asparagus. Most classes of land in his district were suitable for market gardening, and there was a great demand for small holdings for the purpose. The success of a market garden, like that of a farm, depended in a measure on the industry of the occupier; the return from a well-cultivated garden was very remunerative. Market gardens were usually held on yearly tenancies subject to a twelve-months notice to quit by either party. A few leases existed for short terms of years—five to seven. There were exceptions where they extended to twenty-one years. Owners were very loth to grant leases; they invariably asked a higher rental than the yearly tenant pays, and in some cases refuse them altogether. He had never seen any clause in an agreement enabling a tenant to claim compensation for improvements—i.e., for planting fruit trees, fruit bushes, Asparagus, and other crops. Artisan gardeners were not generally informed on their taking a farm that if they planted fruit trees, they would do so at their own risk; but they were protected to some extent by the custom of the country. The rents of market gardens had not been reduced, and there was no depression amongst market gardeners. Very little market garden land was let at less than £3 per acre, rents of £5 to £7 per acre were not uncommon, and some land let even higher. The universal feeling of gardeners in his district was that an Act should be passed to secure their tenant right, be it great or small, and providing compensation for disturbance. Evesham and district was favoured by having two large systems of railway service, placing it in direct communication with most of the large manufacturing districts both in Wales and the North, but a great hardship was felt in a preference rate being given to foreign produce. Another grievance was that the rate for small lots of 2 or 3 cwt. was in many instances nearly double that of a 2 ton lot *pro rata*. A custom prevailed in the district, and on some estates particularly, whereby a free sale of all tenant right is permitted, the landlord requiring that the incoming tenant should be sufficiently substantial. Where a tenant wished to leave he caused it to be known, fixing his own valuation of tenant right, and on finding a purchaser they both went to the landlord or his agent, and the name of the incoming tenant was substituted on the rent roll. Valuers were very seldom called in such cases.

— PETROLEUM FOR APPLE SCAB. — A writer in "American Gardening" says that "some years ago to kill what was thought to be a worthless Apple tree before cutting it down I washed it all over with petroleum (crude oil as it is taken from the ground) in the month of February. I then left home, and when I returned the next autumn that scraggy Apple tree which I expected to find dead was as bright as a silver dollar, and the twigs had made a growth of 12 inches to 18 inches, and a few as good King of Tompkins Co. Apples as ever hung on a tree greeted me, and to-day it is a handsome bearing tree, twenty years old. Since then I have used petroleum on my Apple trees to free them from scab and noxious insects that collect and breed on the trunks of old trees. I apply it with an old whitewash brush at any time before the buds begin to swell in the spring, applying it freely on all large branches and body. Perhaps it could be applied with a sprayer more effectually." [We have recently seen a Peach tree under glass killed by a petroleum dressing.]

— MONEY IN THE GREENHOUSE. — Many people are imbued with the idea that there is a great deal of money in the greenhouse business, and amateurs sometimes plunge into it for profit. The florists' business has increased immensely during the last ten years; more flowers than ever before are grown, and more sold. There is an impression that it is a clean easy business, and a safe and profitable investment. American Beauty Roses bring 50 dols. a 100, Helen Kellar Carnations 8 dols. a 100, and Violets 2 dols.; and all that we have to do is to build some greenhouses, set out the plants, give them some water, and keep them warm; then cut the flowers, send them to the city, and get the money for them, and in a little while our pocket-book will become as big as our hat. But, alas! the facts are different. They are these: With a fair knowledge of the business, the strictest economy, and the closest application to the work, it will take an outlay of 20,000 dols. to realise a profit of 2000 dols. a year; in fact, as business now is, we are (says an American contemporary) placing the profits too high. There is considerable difference between gross receipts and net profits. The high prices received for flowers are mostly imaginary. Amateurs who have gone into the business know all about this; those who are contemplating entering should consider well before sinking their money in it.

— THE WEATHER IN GUERNSEY. — Last week was beautifully fine, after some warm rain on the preceding Saturday and Sunday. I am sorry, however, to say that the wind has again changed to N.E. with redoubled vigour, and is blanching the fresh green grass. Unless the wind changes again very quickly, the second Radish crop, now coming on, will have a severe check. Nearly the whole of the first crop of Radishes were killed by the frost, and this, coupled with the damage done to Broccoli, has been a source of very serious loss. We can now realise the woful effects of the late frosts on the shrubs. Nearly every kind has been damaged, and present a very weather-beaten appearance. Myrtles are almost past recovery, whilst Magnolias and Camellias have suffered equally. Until the Tomato season commences there is but little produce to export except flowers. The growers of produce in cold houses have had a rather rude awakening during the past six months to the risk involved in this class of house. The long spell of wet weather in the autumn causing the Tomatoes to damp off, then afterwards losing the Potato crop by the frost, has taught them a severe lesson. Yet, notwithstanding all drawbacks, the erection of glass houses in all parts of the Island is going on at a great rate—not exactly by the foot, but rather by the mile.—X., *Guernsey*.

— HEDGE PLANTS. — Mr. P. B. Christian, engineer of plantations at Tondern, North Germany, writes:—"Now, as before, people almost exclusively choose the White Thorn for laying out hedges. In fertile, well-cultivated ground, in a qualified situation, fine hedges of White Thorns may be raised if they are attentively cared for and regularly topped. But it is very often impossible to offer the necessary requisites before mentioned, even if we do not spare either cost or labour. Neither in a dry ground, in grey sand, gravel, heath country, nor in boggy, cold, flat land, in the bright sunbeams on steep slopes, can a good hedge of White Thorn be accomplished; and much less in the open acres of northern regions, where some storms, or the persistent coldness of winter, very much hinder the progress of vegetation. The Swedish upright-growing Box Thorn, however, is tougher and much more unassuming. In three to four years that plant, being content with every ground, even if it be the most barren, forms dense and durable hedges. The home of the Box Thorn is the northern part of Denmark, Sweden, and Norway, where we find the farms surrounded by it, even in parts where the climate is rough and unfavourable. The inhabitants of those countries set, therefore, a great value on the Box Thorn, which is most advantageously raised by layering in the months of March and April."

— CAMELLIA RETICULATA. — It is unfortunate that this fine Camellia is not more plentiful, for although it was introduced about 1820, it is only to be found in a few places in England. We have a fine healthy plant of it on the conservatory wall, covering a large space. For some time it has been in flower, and will be for a considerable time to come; the flowers are semi-double, of large size and frilled (over 7 inches across with us) of a glowing pinky crimson; these combined with its partially variegated foliage make a very effective show. A large plant of this Camellia would be most effective in bush form planted out in a large house mixed with others of an effective character, such as Donckelaari, the old Double White, and others of note. Although not now so much thought of as they were in former years, these Camellias, mixed with Palms, Tree Ferns, and greenhouse Rhododendrons, would when in bloom make such a house a place of special interest and attraction during the dull winter months.—A. KEMP, *Coolhurst, Horsham*.

WINTER-FLOWERING BEGONIAS.

WERE I to indite column after column setting forth the merits of this beautiful class of plants it would still be impossible for anyone to form adequate conception of the charming effect which is produced where winter-flowering Begonias are extensively and successfully cultivated. I need, therefore, make no apology for briefly referring to a few of the principal and most useful varieties for general purposes.

The first to claim attention is John Heal, which is one of the first to flower. It is of a dwarf and compact habit, and is exceedingly floriferous. The flowers, which are of a bright rose carmine colour, are thrown well up above the foliage, and cannot fail to please. To grow this Begonia successfully more than the ordinary care will be necessary, or the result will be the opposite of satisfactory. On no account must the plants be coddled, the better plan being to give them an intermediate temperature, and allow Nature to take its course. As soon as they are fairly started repotting should take place, removing about one-third of the old soil and placing them in a size larger pot. Watering must be very judiciously practised after repotting, for if once the soil is allowed to become sodden disastrous results will surely accrue. A suitable compost for this variety will be found in a mixture of good peaty loam, leaf mould and sharp sand. Green fly and mealy bug are particularly troublesome, and immediately signs of either are detected means must be taken to secure their eradication. I should recommend syringing the plants with a little weak tobacco water for green fly, and for mealy bug the best and safest plan is to pick it off with a fine-pointed stick. Adonis is a capital companion to the above with rather larger flowers.

In Gloire de Sceaux we have one of the most beautiful winter-flowering varieties in cultivation, and no collection should be without it. It is of an upright habit of growth, and the large flat flowers are of a beautiful soft pink, making a splendid contrast to the rich bronze foliage beneath. The best results may be obtained by raising young plants every year, as such bloom earlier and for a longer period than old specimens.

Manicata and hydrocotifolia I place together simply because they require similar treatment. The first named, although not of such a compact habit as the latter, is the better of the two. Its foliage, which is large and bold, is of a beautiful dark green colour, while the flowers of a pale pink colour are produced on large branching cymes of from 12 to 18 inches in height. Hydrocotifolia, or the Pennywort-leaved Begonia, is of a dwarf creeping nature. The flowers are produced very similarly to manicata, in large cymose heads of a beautiful rose colour, the pedicels and footstalks being of the same hue. Associated in a cut state with sprays of Asparagus plumosus they are practically unsurpassed, presenting a very light and graceful appearance. Young plants are useful for placing in epergnes in the drawing-room, two-years-old plants supplying capital ornaments for the entrance hall. Young plants should be propagated annually, as it is not advisable to grow them more than two years.

Nitida is rather a tall growing variety and delights in abundance of root room. It produces its flowers in large drooping clusters, and for grouping purposes is indispensable, while as a companion semperflorens gigantea rosea is very striking. Knowsleyana is one of the most free and vigorous of the whole section, and is of great value where cut flowers are in request during the winter and spring.

Many other varieties might be mentioned, but I shall confine myself to two others only, viz., fuchsoides and weltoniensis. The former has very much the appearance of a Fuchsia both in the manner of flowering and the shape of the bright red flowers which are produced in pendent clusters. To be successful in the cultivation of this Begonia it is essential that ample root space be afforded. The best plant I have seen was planted out in a large conservatory and clothed a large portion of the wall, the effect in the flowering season presenting a sight not easily to be forgotten. Weltoniensis for freedom of flowering cannot be eclipsed, and as a house plant or for window decoration is most useful, as it lasts a long time in perfection. Where the above varieties are given a fair trial, the results achieved will amply repay any trouble or labour expended on them.—GEORGE PARRANT, *Ashby Lodge Gardens, Rugby*.



AN OLD ROSE WANTED.

CAN any of your rosarian readers tell me the botanical name of a Rose that years ago was much grown by cottagers against their walls? It was about the height of the old China Blush Rose, but I think of more slender habit. It produced large clusters of small crimson flowers, and was called by the old women the Damask Rose. I have been trying to get these Roses from various nurserymen for years, but they always send me the old York and Lancaster, or a similar Rose, except in colour, which is crimson, and I have no doubt but what it is really the old crimson Damask, although not of the cottagers. My mistress often says, "You will get me a Damask Rose, won't you, when you are getting anything else?" I used to say, "Yes, my lady, I will;" but now I am obliged to say, "I will try."—SOMERSET.

EFFECTS OF THE FROST.

"W. R. RAILLEM" is correct in his conjectures (page 318) to a certain extent. During the latter and more exacting portion of the winter, we had, indeed, in this region abundance of snow; but for six weeks previously we had not this providential element during the prevalence of the frost. I presume that the experience of the Aberdeen rosarians, who have escaped so miraculously, would be the same.

In my last communication on this special subject certain words were unconsciously omitted, not by the printer, but by myself. What I intended to indicate by that somewhat fragmentary passage was this: that, though I had at least 150 distinct varieties of the Rose, and in many instances a considerable number of each, not one of these had been absolutely destroyed. Of these, not more than a score received any protection during the winter. I may also state that a large proportion of these were either Teas or Hybrid Teas.

I venture to think that if "W. R. Raillem," and many other extensive Rose cultivators would substitute dwarf for standard Teas, they would hereafter have greater satisfaction. I do not think the latter are much cultivated in Scotland.—DAVID R. WILLIAMSON.

IRON SUPPORTS FOR ROSES.

A LARGE number of growers have from time to time expressed their opinion that these are conducive of increased injury during severe frost. Having seen many cases where both practices prevailed, I am bound to say I find little, if any, difference. To my mind, especially in the case of Roses, it is more a question of increased exposure than any evil effects from association with iron in any form. Not only are the plants fully exposed to the whole of any severe weather that may prevail, but they are subjected to sudden and extreme changes. Bright sun for a brief period, followed by a very keen and frost-laden wind, are in my opinion far more injurious than any cause that can be clearly traced to iron supports alone. If this is not so, why do we find Roses not so situated, but still on iron supports, comparatively untouched?

WORK UNDER GLASS.

Mildew and aphid will soon be very troublesome unless we take early means to check as well as prevent. In a house devoted entirely to Roses I have little fear of mildew, experience having shown that a little care in the avoidance of causes is not only easy, but a safe prevention of this distressing enemy to Rose growth. Extremes of any kind are wrong, and never more so than when dealing with mildew. A free use of the syringe and a weak solution of any of the many proved insecticides will keep down all insect enemies of the Rose. But it is most essential to commence early, both as a preventive of injury and the establishment of the pests.

Mildew is the result of drought, draught, and undue changes of temperature. Good management will avoid these, and at the same time steer clear of mildew. Be generous in quantity if not in strength of liquid manures now that Rose growth is so active. A little may be afforded to young plants grafted this season, and the ammonia arising will help to keep the foliage sound and healthy. Colour and substance of leafage are imparted thus. Should the weather be warm and bright it is a good plan to slightly shade the Rose house now, or the temperature is apt to rise too high for the good of the plants, and necessitate more or less ventilation, with risk of a keen air which frequently prevails at this season.

ROSES OUT OF DOORS.

Our work outdoors is also coming on apace. There are both dwarf and standard stocks that were budded last season to attend to. These should be cut back close to the Rose bud, and a careful look-out kept for all suckers. Dwarf budded stocks present the most pleasing promise among all our Roses. The same cannot be said of standards, either plants or dormant buds; for, while the Briar itself is unharmed in many cases, sound buds are scarce. Spring mulching and surface stirring will soon be necessary; so, too, will the staking and tying of maidens, both dwarf and standard; therefore, opportunity should be taken to have sticks of suitable lengths ready sharpened. When maiden Roses com-

mence growth they make rapid progress, and a few days' delay in supporting, is courting failure from wind and rain at a time when the young Rose is exceedingly tender.—PRACTICE.

NEW ROSES.—HYBRID PERPETUALS.

(Concluded from page 319.)

THIS class, which in former years used to take the pre-eminence, has latterly fallen very much into the background; nor is this to be wondered at when we consider the magnificent varieties which have been sent out in former years; nor can there be any hope of rivalling the richness of their colouring, fragrance, or, in fact, everything—the beauty of the Rose! Does it not seem hopeless to get beyond such grand flowers as Marie Baumann, Horace Vernet, A. K. Williams, and Charles Lefevre? However, foreign raisers seem little deterred by the difficulties, and from year to year send us some, though not perhaps with such brilliant expectations as they have done in former years. The following is their description:—

BARON DE ST. ALBE (Schwartz).—A large imbricated flower of a fine velvety crimson red colour shaded with purple and currant red, very sweet scented.

BARONNE GUSTAVE DE ST. PAUL (Glaudenel).—A very large flower with a firm stalk of a pale rose colour, with the reverse of the petals silvery; very free flowering and good for forcing.

COLONEL MIGNOT (Chauvry).—A very full large flower of a globular shape, rosy lilac colour, the reverse of the petals silvery rose, very sweet scented; offspring of Carl Coery.

GÉNÉRAL AUNENHOFF (Lévêque).—A well made large full flower, dark vermilion red in colour shaded with brown and puce; very free flowering.

MADAME ANTOINE RIVOIRE (Liabaud).—A large cup-shaped flower, very light rose colour, with the reverse of the petals of a carmine shade.

MADAME DE LA BASTIE (Liabaud).—A very large, full, round-shaped Rose, opening very well; of a light salmon rose colour, white on the edge of the petals, with the reverse of the petals of a duller red shade.

MADAME LA DUCHESSE DE LORGE.—A very large cup-shaped flower, opening very well, and of a carmine rose colour; very free flowering and sweet scented. Offspring of Elisabeth Vigneron.

MADAME MARGUERITE MARSAULT (Cortœuf Marsault).—A large, round full flower of a good shape, of a bright red colour, the reverse of the petals violet; very free flowering.

MARIE HARTMANN (Hartmann).—A large, full, imbricated flower, very good shape; colour blood red shaded with vermilion, free flowering, with the perfume of the Cabbage Rose.

MERVEILLES DES BLANCHES (Pernet Père).—A large full flower of a pure white colour, lightly shaded with rose colour in the centre; sport of Baronne Adolphe de Rothschild.

MONSIEUR DE SYRAS (Schwartz).—A large single flower, well formed, of a bright carmine rose colour, shaded with mother-of-pearl; flowering very well in the autumn.

MONSIEUR GUILLAUME POPIE (Corbœuf Marsault).—A large, well made, full flower of a pure bright red colour, without the slightest tinge of purple; very free flowering.

SOUVENIR DE CHARLES VERDIER (Verdier).—Medium sized flowers, united in a bunch of five to eight blooms of purple-violet colour, brightened with crimson-red, and darkly shaded with slaty purple; very sweet.

SOUVENIR DE MADAME EUGÈNE VERDIER (Jobert).—An exceptionally large flower of a fine round shape; bright rose colour, with the reverse of the petals silvery; excessively fresh delicate colour, very free flowering, and sweet scented. Offspring of Baronne Adolphe de Rothschild.

I have omitted some of the minor and more fanciful classes, for I do not find in them anything very promising or likely to captivate us much on this side of the channel; we have our own Sweet Briar Roses of Lord Penzance's raising, and I may mention here that Messrs. Keynes, Williams & Co. say we have not propagated these in anything like sufficient numbers, and the demand has considerably outrun the supply.—D., Deal.

MOUNT MERRION.

MOUNT MERRION, Co. Dublin, the Irish seat of the Earl of Pembroke, is situated on the gently rising ground of the southern side of "sweet Dublin Bay." From the more elevated parts of the demesne, the panorama disclosed is singularly striking. Looking seawards the bold headland of Howth on the opposite shore of the bay forms a fine background to the seascape, whilst on a clear day the blue outline of the Mourne Mountains in the Co. Down stands out sharp and clear in the far distance.

Mount Merrion is situated four miles from the "car drivingest city," and about a mile from either the Booterstown or Blackrock stations of the Dublin, Wicklow, and Wexford Railway. Merrion Avenue, a straight road from the sea, one mile in length, immediately faces the principal entrance to the demesne, entering which a noble avenue of trees forms a continuation of the line, broken only by the entrance gates. A broad margin of greensward each side of the road gives due proportions to this avenue leading to the mansion.

The quaint old pile, dating from Elizabethan times, has escaped

the improving hand which too often sacrifices historic associations to modern art. Looking through nineteenth century spectacles, this building appears somewhat undersized in relation to the broad acreage of the park and commanding aspect, an effect doubtless partly attributable to the massive trees. These are chiefly deciduous, the Elm predominating.

Inside the gardens a wide border of hardy plants comprising many good things shows that Mr. Crawford is in touch with the times. Other borders are devoted to summer bedding of annuals for cutting purposes. Asters are largely grown, and the Comet variety, especially the white one, receives due regard. This and the lovely white Princess Alice stock



FIG. 57.—MOUNT MERRION.

Situated between the mansion and the gardens is a densely timbered plateau with an underplanting of Laurels and intersected by drives. These afford some delightful peeps, one of which constitutes the view (here given) taken by Miss Armstrong. Before entering the extensive gardens some interesting—apparently natural—rockwork planted with Heaths and other suitable plants claims attention.

are of high merit when the zenith of the season has passed. A large patch of an old fringed Carnation, compact in habit, floriferous, of a dazzling crimson shade, is not to be forgotten.

In due season the extensive collection of Chrysanthemums arrayed—during their growth—in a sheltered square is, needless to say, the chief point of attraction with the fever-smitten ones, and as the immediate

neighbourhood is the very stronghold of mum growers, and Mr. Crawford literally and figuratively a giant of the tribe, love (perhaps fear) prompts due homage. Of what our portly conductor has done is a matter of recent history, carrying off at the last Dublin show a 20-guinea cup, a 10-guinea cup, and several first prizes. Of what he is going to do it is not for me to betray confidence, not forgetting "there's many a slip;" but if he does not retain his trophies in the next battle it will not be his fault, but rather that of some mountain-born breeze, which so often swoops down from the near inland hills.

In the glass department two serviceable span-roofed houses are filled with miscellaneous plants, among which is a fair sprinkling of Orchids—the ruling passion for some years of the late Mr. Welsh, Mr. Crawford's predecessor. Lean-to vineries and Peach houses, built at a somewhat sharp angle, have for many years done good duty, and do so still. In no part of the garden is the expert hand more in evidence than in the vegetable quarters, and considering how much the soil in this old garden has been taxed for generations, naught but good culture and judicious management by rotation of crops could produce results so highly satisfactory. One advantage, not always possessed by similar places, is that but few old fruit trees are allowed to cumber the ground. Well-cared-for pyramid Apples and Pears have taken their places, and prudence restricts the planting to such varieties as are likely to succeed where the soil and situation is not the most favourable.

Due respect is paid to two old Mulberry trees, favourites of the Earl and Countess. Near these trees, on a stretch of lawn "all shaven and shorn," are two massive rectangular beds, capable of swallowing up some thousands of bedding plants. These give a distinct feature to the garden, and render tribute sufficient to the fashion of bedding, for beyond a few beds which brighten up the vicinity of the mansion, the old love of hardy flowers is not jilted by the new.

Order and neatness is noticeable in all departments, bearing evidence of good generalship over the staff, each member of which appears to know what to do and how to do it.

OLD-FASHIONED FLOWERS.

SURELY a plea for some of these is justifiable. In these days of so much enterprise and keen competition, many and rapid are the changes constantly taking place in all phases of horticulture. The demand for something new, especially in the floral world, daily becomes more apparent, and to meet this all the skill and industry of enterprising nurserymen are called into requisition. To see the force of this fact we have only to scan the groups of plants and flowers at any large horticultural show, or wander through the Drill Hall, London, on the occasion of one of the periodical meetings of the Royal Horticultural Society. There may be seen new and rare plants of almost every species, exhibited by energetic growers, with the fond hope that the much-coveted certificate may be granted, by which the position of new additions in the world of horticulture becomes assured.

"Forward" is the watchword of the present age, and to keep pace with the times it becomes necessary that no stone be left unturned in swelling still further the vast number of beautiful flowers which now adorn English gardens. Therefore all honour is due to the indefatigable energy of raisers and growers who have done so much by their labours to raise the standard of horticulture to the condition we now see it.

There is also another side to the question; while we are so highly interested in the constant clamour for something new, do we not sometimes pause and think with feelings of regret of many old-timed favourites once so popular in our gardens, and now, alas! forced to take a place far in the background, or perhaps dropping out of the ranks entirely?

It is for such as these I would put forth a plea, and, happily, there are still many gardens in the kingdom where they are considered worthy of the place which in others is taken by something more modern and up to date. There seems to me to be a touch of pathos about old-fashioned flowers; a kind of connecting link between the past and present which cannot fail to appeal to the mind of a thoughtful man.

To illustrate this, fancy some weary wayfarer returning to the home of his childhood after perhaps a long sojourn in a foreign land. Kindred and friends are gone over to the great majority, the old house is pulled down or renovated beyond recognition, there appears to be nothing left to remind him of the old days; but, stay! there is surely something? Yes, the old garden flowers are still there, as if to welcome him home again. They spring up before him, and in their familiar forms he sees once more and lives over again his youthful days. There is the climbing Honeysuckle and Wistaria, trained in their early life by his own hands, flowering as profusely as of yore; the old Cabbage Rose bush in the corner nods him a welcome; tall Delphiniums, Snapdragons, Sweet Williams, Foxgloves, Lilacs, Laburnums, and hosts of others still occupy their old places, blooming on quite oblivious of the changing world all round. He is no longer lonely, as betwixt him and these there is a bond of friendship which long years of absence have failed to sever. No new species, however beautiful, could appeal to him like these simple flowers as he stoops to pluck a blossom ere he passes on, satisfied that all things have not changed. The tenacity in which some garden flowers stick to life is admirably portrayed by Goldsmith in his "Deserted Village," where he says:—

"Near yonder copse, where once a garden smiled,
And still where many a garden flower grows wild,
Where a few torn shrubs the place disclose,
The village preacher's modest mansion rose."

Some may perhaps say, What has all this sentiment to do with the theories of modern gardening? The answer comes, Little or nothing. Perhaps, though, if I mistake not, all true lovers of horticulture are disposed sometimes to linger with thoughts of admiration and regard for flowers which adorned our gardens ages ago.

At this period of the year it will not be out of place to mention one section which it is gratifying to know never grow old-fashioned—viz., wild flowers. Soon the hedgerows and woodlands will be clothed with these gems of the spring. Beyond the pale of cultivation, they come and go undisturbed, and each season are accorded a hearty welcome: Unchanged by fleeting time, the modest Primrose and sweet Violet are held as sacred to-day as in the time when they adorned the festive ceremonies of the Druids in ancient Britain. No caprice of changing fashion ever comes to steal away the affection for wild flowers, and oftentimes may be seen the simple Forget-me-not, sweet Honeysuckle, and wild Rose mingled in decorations with costly Orchids and other delicate specimens.

No one will venture to say that the wild yellow Broom of the moorlands is not as popular to-day as when it adorned the helmet of the first of the Plantagenet kings prior to going to battle, and from which plant that line of monarchs received its name. All these worthies are now only figures in history, but the flowers are still with us, blooming on, regardless of the swift passage of time, occupying perhaps the same places from which they were plucked ages ago to crown the Queen of the May on the village green. So as they come and go we may read in their simple forms an unwritten history of the early and middle ages. There is yet another difference between wild and cultivated flowers. On seeing one of the latter the first thought of an enthusiastic gardener is, whether he cannot by his superior art improve on it and obtain something still more attractive. With the former no such idea enters his head, he is satisfied with its simple beauty, and knows that no effort on his part can add to it. Apart from gardening proper, the same love of wild flowers is displayed by all and everyone. To see this we have only to notice the crowds of boisterous excursionists returning to some crowded city after a day in the country laden with these treasures of the fields, which doubtless carry with them a gleam of sunshine into many a court and alley.

To all who are engrossed in the productions of new additions I would say, that commendable as your efforts are, let them not be the means of stealing away attention from many which were the pioneers of floriculture in England.—G. H. H.

MODERN GRAPE GROWING.

(Continued from page 316.)

THE TRELLIS.

I HAVE no reason for altering the line of trellis adopted twenty-five years ago—viz., not less than 2 feet from the glass anywhere and 8½ feet above the centre path. This brings it away from the ridge between 4 and 5 feet, one of the objects being to keep the bunches out of the reach of hats and bonnets and yet to have the foliage as far as possible from the ventilators. It is also a great advantage to have the bunches sufficiently low that as many as possible of them can be seen and attended to without steps. True, we lose a little in the length of rod, but it only amounts to about 18 inches in a wide house, and the advantages more than counterbalance this.

There is no need in our modern light houses to "keep close to the glass" for the sake of light, because it is light everywhere except it be shaded by the plants, and where a span-roofed house does not run due north and south, as often happens unavoidably, the side which is most inclined to the north will be under a disadvantage, therefore the lower the trellis can be kept in the centre of the house the longer will the sunshine reach the upper surface of the Vines growing on the colder side.

It is of the greatest importance that the upper surface of every leaf should be exposed to the action of light and air; indeed, the leaves themselves are teaching us this lesson every day in our lives, for no sooner do we tie a branch down and alter the position of the leaves than they instantly commence re-arranging themselves, and cause the stems to alter their angles and assist them in doing so. When we allow the leaves to press against the glass they are helpless and probably useless, for their upper surface is for the greater part of the time covered with water, sometimes boiling, sometimes freezing, and transpiration cannot go on properly. In addition to this they are preventing the light and air reaching other leaves. Where a practical gardener is called on to give his advice of course all these matters will be taken into consideration and well thought out at the time of fitting up the houses, but unfortunately so many proprietors, though they are willing to give their gardeners all due credit for their cultural abilities, yet seem to think that everybody else knows better about the fittings necessary for successful cultivation.

I have always been fortunate in having reasonable people to deal with in this respect, but I have seen many of my brethren of the craft who possess great abilities, and yet are severely handicapped. I know of one large establishment just lately entirely renewed. The houses are handsome, and are built of iron and glass; but the ventilating gear is so arranged that you cannot open the south side without opening the northern one at the same time. The gardener is a clever man, but if he succeeds in growing Peaches and Grapes to his own satisfaction in these structures as they are, he is far more clever than I take him to be.

In the Longleat vinery, the wires forming the trellis are stretched

lengthwise of the house, and where the Vines are to be planted at a less distance apart than ours are perhaps this is the best plan, but as none of ours are much less than 5 feet apart we have a simpler, more convenient, and less expensive arrangement. Half-inch gas pipe is fastened at the proper height by screws to the wall or mullions, as the case may be. Another pipe of the same size is suspended from the T iron, which forms a purline about 9 feet up the rafters, and small galvanised wires are stretched between these two pipes, and continued to the T iron on the opposite side of the span. Three of these wires are used for each rod—one for the rod itself, and one on each side, 16 or 18 inches from the centre wire, to tie the branches to. I find this is all that is necessary, and it makes it an easy matter to get up between the Vines, and look over them in any part of the house. As the wires are merely twisted at the ends on to the gas pipe, we find it very convenient to be able to shift one a little one way or the other, when it happens to be in the way of a favourite bunch.

THE WATER SUPPLY.

It is a cruel thing to build costly vineries and expect a man to grow Grapes without giving him an adequate supply and means for using water. Making bricks without straw is, I believe, not an impossibility, but attempt to grow Grapes with an insufficiency of the commonest yet most precious of all liquids and you will fail. At Longleat provision was made for catching and storing a large quantity of rain water. This I now consider was not necessary, for spring water is probably the best for fruit trees, only it should not be applied too cold. Mr. Chaffin has fixed two large brewer's tubs capable of holding upwards of 7000 gallons at an elevation of perhaps 200 feet above the vineries. These tubs are supplied by a never-failing spring of ample volume, and they are connected by pipes and taps with all the houses, where a supply of 960 gallons an hour can be had, so that with a hose watering in the summer becomes a very simple matter.

For use during the spring months we have a separate and smaller supply, which can be drawn at the requisite temperature in any one of the houses. This is used till such time as the water in the large tubs reaches a temperature of about 55°, which it generally does at the end of May or beginning of June, by which time the wants of the Vines are greater.

Where the requirements are not large a cistern supplied by a tap inside each compartment would be sufficient to afford water during the early growth of the Vines, if care was taken to keep it filled and water a portion of the border each day, or whenever the water had become sufficiently warm that it would not lower the temperature of the soil when applied to it. Some writers, I know, have said in the *Journal* that it is not necessary to use warm water at all; but I do not intend to take their advice. On the other hand, I do not like to use it too warm, as it takes too much out of the soil.—WM. TAYLOR.

(To be continued.)



BAFFLING EARWIGS.

ON page 311 of last week's *Journal of Horticulture* I see an account of an earwig "trap" in the form of a 9-inch pot with a water-holding rim 1½ inch wide by 1 inch deep. I should like to say that several years ago I had a few similar pots made, but found there were several drawbacks to the same, such for instance as price, clumsiness, absorption of water in dry weather, and thus not serving their object, stagnation at the base of the pot during wet weather, also holding water when the plants are housed, another strong objection. I therefore invented a stand to hold water, which I patented some years ago (as per enclosed). A good substitute, however, at a trifling cost, is a saucer or seed pan without holes, placing a smaller one inside inverted, then filling with water. The plant when stood on the inverted pan is thus surrounded with water. My experience of the results of this protector I mentioned at the Centenary Conference of the National Chrysanthemum Society.

I am now residing in a pottery district and use bowls glazed inside, and place therein 48-size pots inverted. To secure the plants in case of wind wire tightly drawn back and front is fixed to the posts to come just under the rim of the flowering pots. The original idea is seen in the old Dahlia ring, but now other systems are followed, and in some cases trenches filled with water.

I can thoroughly recommend the two-pan system or the bowl and inverted pot, and would add that it is desirable to attach rag soaked in petroleum at the bottom of the posts, or adopt some means to prevent earwigs crawling along the wires and so reaching the plants. To those who have limited means, space, or time a considerable saving is made, and much trouble, annoyance, and disappointment spared when adopting some arrangement after the principle I have mentioned.

Perhaps I may take this opportunity to say that in regard to the movements of the earwig I think there need be little fear of its flying upwards, as after having watched this insect very closely for some years the only object of its wings, so far as my experience tells me, is to

check rapidity when falling—serving as a parachute as it were. When an earwig drops it would seem as if it must have fallen to the ground, but on a close examination, as all mummers know who tenderly watch their plants, the insect will be found to have clung to the edge of an underneath leaf or stem, and as a somewhat curious fact I may mention that I have invariably observed that if when using a bull's-eye lantern and tweezers I have failed to seize an earwig on the first occasion, the next night the insect will fall immediately the light is cast on to the plant.—HENRY BRISCOE-IRONSIDE.

[We are obliged to Mr. Briscoe-Ironside, and have returned his enclosure. His patent differs, as he intimates, from the rim barrier, which appears similar in character to that forming part of a seed pan

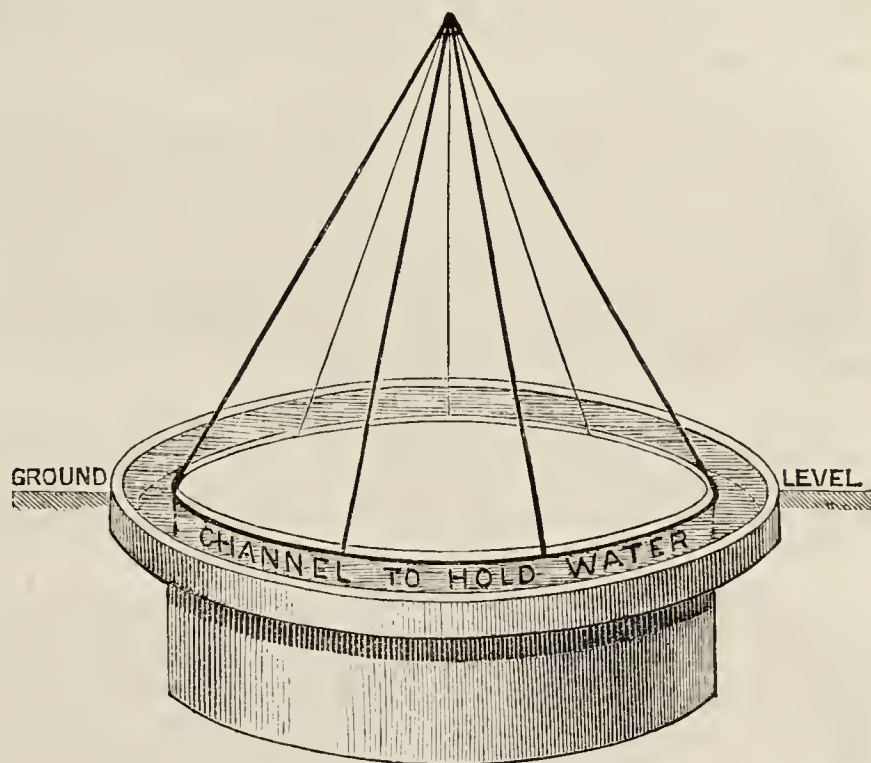


FIG. 58.—AN EARWIG BAFFLER.

of Mr. Wm. Moody Bell, of Cheltenham, and which we figured in 1891. It is shown as plunged in the engraving (fig. 58), and protected by a hand-light. The channel is an excellent barrier against slugs and woodlice.]

CULTURE OF DELPHINIUMS.

AS seen in many gardens in which a few of these plants are represented, the Delphinium would appear to count for little, giving no true estimate of these easily cultivated and perhaps the most noble of our hardy border flowers. Would that I could fully describe the effect produced on my mind by some 300 to 400 plants in flower, grown so admirably by Mr. Robertson, gardener to W. S. McMillan, Esq., Ardenholm, Maghull, near Liverpool, not feeble little plants, but giants of strength, from 4 feet to 8 feet high, clothed with foliage down to the ground.

In dealing with their cultivation it will perhaps be more to the point if the preparation of the ground is first dealt with. If there is no stint of good cow manure so much the better, as the bed can be properly made in the first instance; and with good feeding and top-dressing will give the most satisfactory results for some years. The site determined, remove the old soil to a depth of about 3 feet, placing at the bottom 9 inches or a foot of good cow manure, filling in the remainder with a mixture of old turves, decayed manure, and lime rubbish, levelling all ready to receive the plants.

A stock can be easily raised from seeds which may be sown at once in pans or boxes filled with good sandy soil, covering them slightly, and remove to a warm house, where the seedlings will soon appear. When large enough to handle prick into small pots or boxes, using good loam, leaf mould, and silver sand for a compost. Keep them growing steadily and harden the young plants previous to planting, which may be done when danger from frost is over. If raised from seeds they may be planted somewhat closely for the first season, as a vigorous weeding out is certain to take place if only the best are to be retained. The following season a distance of from 3 feet to 4 feet apart should be given. They may also be propagated by division, the latter being recommended where good varieties are to be increased.

Before staking it is well to determine how many spikes are to be left consistent with the strength of the plants. The inside shoots may be secured, first giving sufficient room to show the spikes to advantage. By a little judicious management foliage disfigured by cold winds in the early part of the season may be almost covered.

When the plants are about a foot high feeding may commence, with rather weak supplies of diluted liquid manure given twice a week, increasing the strength as the spikes appear. Soot and lime act as fertilisers, and are great preventives against slugs. After flowering, a good sprinkling of bonemeal round each plant will be found beneficial; continue the watering until the plants show signs of rest, when a

moderately thick coating of ashes placed over the crowns will preserve them from harm during the winter. I append a list of named varieties sufficiently good to satisfy the most exacting—Britannia, Beatrice Kelway, Ben Davies, Evelyn, James Kelway, Lord Charles Beresford, Miss Macintyre, Miss Salway, Mr. Edgar Wild, Nuphar, Robin Adair, and Sea Spray.—R. P. R.

PRUNINGS.

MR. ARNOTT'S sectional diagram (page 247) of rockwork for hardy plants was not as satisfying as his inimitable papers on that subject are. In fact, t'was pondered over till I found myself humming a few bars of that stirring old tune, "Such getting upstairs I never did see!" Yet, as he explains, the outline is not a hard and fast one; it has, too, the merit of simplicity, and a simple plan is often the safest.

If the only reason in substituting Rape for Mustard (*vide* cutting from the "Globe," page 249) is that it can be cut in a week, as against a fortnight for the Mustard, then it is no reason at all, for I find it easy to sow and reap the genuine article inside of a week. This is the gist of the matter *in globo*. I use shallow wooden trays, 1 inch in depth, half filled with rough leaf mould, on which the Mustard or Cress is sown without covering; watered with warm water, then piling the trays muffin fashion. Germination is rapid. This effected, they are removed to the light, and further watering is done by running a little water through the trays without wetting the leaves.

Eucharis Stevensi, judging by fig. 44, page 253, appears to be more recurved than the type, in addition to the merits claimed for it. I welcome an old friend appearing by proxy through the haze of a score of years, coupled with some kindly thoughts of him and his hospitable "missus."

"D., Deal," deals trumps in his notes on new Roses (page 254), and very reasonably asks what an English gardener would make of the name Grande Duchesse Héritière Anna Maria de Luxembourg? It is a question not easily answered. I could have recommended for the purpose an old gardener who loved his "Glory de Johns," but he has long since "shuffled off this mortal coil." Anyway, I venture to say that its own parent—the raiser—would not have known it.

All holders of (Dahlia) stock are indebted to Mr. Mawley for his comprehensive balance sheet (pages 265-267). In the Cactus section I venture to predict that Juarezi will always take high rank. In fact, they are all very beautiful, and the exhaustive analysis will keep old growers up to date, may bring new investors to take up some shares, and there is but little danger of love's labour—by "E. M., Berkhamsted"—being lost.

Mr. Dunkin ably pleads and prescribes for the sick and wounded (page 268). A hot (hospital) bed would indeed be a boon in many gardens, for many who have not this convenience are prone to sacrifice their maimed and mutilated on the altar of appearance by throwing them out. On one occasion when noting the super-luxuriance of some large Palms, in very small pots, just imported from the Continent, I was told by one who knew, that they had been grown in strong bottom heat standing thickly together. And—tell it not in Gath—where the roots had come through they had been trimmed off! Would that Mr. Dunkin could be the universal provider of the wants he so well depicts.

I am quite of the same opinion as "E. K., Dublin," on the advisability of moving with the times (abnormal seasons) in the matter of flower shows, but must confess that, while he exposes an evil, the remedy is not clear, so all concerned are as they were, and likely to remain so, unless the verdant imagination of our Hibernian friend can suggest a way out of the bog.

Glad to see you, Mr. Molyneux, among your beloved 'mums (page 277). The border section needed a little stimulus. They have it now. You had but to say "I recognise the merits of this section," when "so say all of us." I must now seek the whetstone.—SAYNOR.

A SPRING DAY AT FULMER.

As a rule when one goes visiting in the country during the early spring months it is with the hope of seeing something special, something out of the ordinary run. A little later in the season the trees and hedges are bursting into leaf, the birds into song, and everything wears an air of tranquil peace that is peculiarly soothing to the nerves of the townsman provided he is a lover of Nature. A Londoner recently in quest of a restful pilgrimage found himself at Slough, with a four-miles drive before him, "coached" by Mr. J. G. Mowbray. The route was picturesque, the time shortened by anecdote till reaching the gates of Fulmer, and we were soon in the skilful young gardener's pleasant home. Here, "far from the madding crowd," is no haste, no bustle, no smoke—nothing but sweet surroundings and a quiet peaceful calm. Under their soothing influence we discuss congenial topics deliberately—lazily—till darkness steals silently on, rendering it impossible for us to examine what we had come in part to see—the Cyclamens—the

home display, from which plants were drawn that swept up the chief prizes at the Crystal Palace show last month.

As is befitting on the part of gardeners, we were out in good time in the morning. At no time do flowers look so fresh and so bright as under the gleams of the early sun. Refreshed by the rest of night, their substance seems increased and their charms intensified. Is it not thus with most flowers? It appears to be distinctly so with Cyclamens, which are apt to look a little jaded some hours later on sunny spring days.

The sight on entering the structure is indeed a glorious one. Each side is a mass of blooms—sheets of white, rose, red, and crimson—while on a shelf above is another bright and beautiful display. No sign of the staging is perceptible, the plants having to be placed in direct contact one with the other to permit of space being found for them. A single pot is placed on the floor, and then the individual dimensions of the plant are first recognised, being almost 2 feet across. The habit is perfect, foliage stout, strong, and beautifully marbled, and the exquisite blooms stand boldly above the leafage. That single plant in a 6-inch pot is worth travelling a very long way to see. Dozens of plants are grown, some in 4½ and others in 6-inch pots, as Mr. Mowbray is not a believer in growing plants year after year, the majority of his being two and three years of age. The strain of seeds is an excellent one, as the flowers combine so admirably clear colouration with perfection of form.

The question as to the mode of culture followed is approached with diffidence, as we fear the grower may be reluctant to give himself away, so to speak. Such, however, is very far from the truth, for he is only anxious to give the world the benefit of his experience, in the hope that it may be of assistance to some less successful slave to the Persian beauty. Its name is Simplicity. The seeds are sown in pots or pans at any time during the months of October or November, the whole, after moistening the soil, should this be dry, being covered first with a sheet of glass, and then with a piece of brown paper. The receptacles are then plunged in boxes of moss, these being stood on the hot-water pipes, the moss never being allowed to become very dry. Immediately the young plants appear the glass is gradually tilted to admit air, more and more being given until the seedlings are fully exposed. Directly this stage is reached the pots are stood on a shelf close to the roof glass of an intermediate house, and as the plants attain to sufficient size are pricked out into pans, and again placed on the shelf, where they remain until they are ready for placing singly in small pots.

The operation of potting, which commences directly the plants have two or three leaves, is carried out with the utmost care, the first shift from the pans being into small 60-sized pots. This with the next transfer, which is to large 60's, is what may be termed a light potting, the soil not being pressed at all firmly round the roots; the next move brings the plants to 48-sized pots, and the final into, as was previously mentioned, 32's or 6-inch pots, each of the latter pottings being comparatively firm. At the earliest potting the corms are buried in the soil, and at the last are right on the surface. During the whole of the period covered by the growth to this stage the plants are kept on the shelf, and freely syringed, the temperature ranging between 65° and 70°. In the month of July the plants are removed to a span-roofed pit, and there left until October, when they are brought indoors to commence flowering. From the time the seeds are sown until the plants are in flower the attention is unremitting, and as such deserves success.

The compost for Cyclamens is a matter of some importance, and varies with the different stages of growth—becoming gradually stronger. At the first it consists of about three parts leaf mould to one of loam; while at the last the positions are exactly reversed. These proportions are, it may be well to point out, approximate, as Mr. Mowbray simply goes by the feel and appearance of the soil, not measuring anything. At each of the stages a good admixture of road sidings, or in the absence of these coarse sand, is thoroughly incorporated with the soil. As with the mixing of the soil and potting the utmost care is taken to insure good drainage, the advantage of looking after such details being fully recognised.

Though Cyclamens are grown so well it must not be imagined that other plants are neglected, for such is not the case. Attention is given to all plants grown to such extent as to bring them as near perfection as possible. The Freesias may be adduced as an example of this, for though of the variety *F. refracta alba*, they have become, by extraordinary cultivation, almost unrecognisable. They are superior to those usually seen in all ways. The growth is stronger and dwarfer, the flower spikes are more numerous and more profusely bloomed, while the colour is purer and clearer and the scent even more fragrant than customary. Compared with many so-called varieties of florists' flowers, and between which there is so little difference, this is undoubtedly worthy of a distinctive name. Were it an Orchid we might dub it *F. refracta alba*, Mowbray's variety, but as it does not come beneath this magic category we must perforce leave it as it is. If the grower would favour the readers of the *Journal of Horticulture* with his method of treatment there can be no doubt that the notes would be read with interest, and be of great assistance to many persons who are desirous of improving these beautiful and deliciously fragrant flowers.

At Fulmer fragrance, combined with beauty, is the desideratum, hence we see large numbers of Freesias; handsome plants of Gardenias grown as they are rarely seen, so pure is the colour, so perfect the form and so powerful the scent, and of which details of culture would be welcomed; Violets, Hyacinths, and many others all showing the influence of watchful care. Foliage plants are also admirably grown

here, Crotons being especially rich in colour. Scent of foliage is also taken into account, for scented Pelargoniums, Lemon-scented Verbena, Eucalyptus citriodora and E. globulus are each well represented. A few of the many plants grown are mentioned, but these must be sufficient for the present, as we would like now to glance hurriedly at the fruit.

Both outdoor and under glass fruits are grown, many kinds being represented in varying numbers. Of the hardy fruits, nothing could be seen but bare stems at the time of our visit, though now, no doubt, with the warm sunshine rapid advances have been made. Under glass a very different aspect of affairs is seen, for here the fruit on many trees is well set, and others are in full bloom. Most of the Peaches and Nectarines are old trees that have seen their best days, but still Mr. Mowbray hopes to secure some more good fruits from them. The Vines though also rather old, are still promising a good return for labour, and if the crops of any fruits are not good, it will not be the fault of the grower, who evidently does his best to grow everything well.

Fulmer, though not an old place, has many splendid trees, Conifers being especially fine, but of these, with the Rhododendrons, more may perhaps be said later in the year. The place was "made" by Mr. J. Mowbray, sen., and under the superintendence of his son will be a lasting memorial of his untiring energy and indomitable perseverance in overcoming all obstacles. In the early days of Mr. Mowbray, sen., there was no mansion on the estate, but the present owner, Major the Hon. H. C. Legge (who, with Mrs. Legge, is very fond of gardening) has caused one to be erected. There are several good points about the place, such as the vinery, the mansion, the trees, the gardens, the gardener, and others; but these will be sufficient to show that here is comfort and unity, and such an air of tranquil peace, as is mentioned above, pervades o'er all. At last we turned our faces homeward, and soon the train whirls us into London and smoke.—NOMAD.

ANEMONE PATENS OCHROLEUCA.

IN complying with the request of a correspondent the illustration (fig. 59) will furnish him with an idea of this pretty variety of Anemone. It has cream white flowers, somewhat larger than those of the normal species, which are very attractive. The plant is perfectly hardy, being a native of Siberia, and is rarely seen in cultivation. Anemone patens, or the Spreading Windflower, is a variety little more common and easily grown. The flowers, which are about the size of those of the common Wood Anemone, are of a pleasing light yellow colour. It grows to a height of about a foot, and soon forms large clump in rich soil. Both varieties flower during May and June, but not very profusely.

MARKET PLANTS AND FLOWERS.

SKILFUL cultivators of plants for market purposes wisely act on the principle that it is the better plan to grow a few well than a more varied stock indifferently. Thus it is that Covent Garden Flower Market is so well supplied all the year round with plants and cut flowers, whose cultivation leaves nothing further to be desired in the ideal of excellence. How that result is obtained is most important, and is no simple question that can be answered in an off-hand manner. There are several important items to be considered and formulated previous to the propagation of stock and future development.

The principal feature of such items may be enumerated under the heads of capital, brains, energy, and last, though not least, situation. Skilful gardeners cannot grow good Grapes where the vineries are overshadowed by tall trees, nor can they in an atmosphere overcharged with carbon grow some of our common plants to perfection and fit to be admired. It may also be observed that it is to the evil influence which is ever present in the atmosphere of the metropolis that some of those nurseries, which used to be the glory and pride of young gardeners, have altogether disappeared. Situation may not be everything, but it certainly is nine points in a grower's favour. Some localities may do very well for the cultivation of Palms and Ferns, but to attempt to grow common Zonal Pelargoniums, Genistas, Calceolarias, Hydrangeas, or Roses, with a view for Covent Garden Flower Market, courts nothing but failure. Let anyone try his utmost, his Zonals lack the vigour of country grown plants; the foliage is thin and pale, the flower stalks weak, and the blooms feeble in tone; and of all places in the world where such a contrast is perceived it is in Covent Garden Flower Market.

The buyers can tell in a moment. The Genistas are weakly wooded, straggly, and the flowers a dullish yellow, and are altogether scarcely fit for the coster's barrow. It is the same with all other flowering plants he may attempt to grow, and the consequence is that they hang on his hand, and go at last for an "old song." Even if the cultivator should go in for Palms, the extra labour entailed in keeping them clean and fit for market is a great drawback. No one but those who have experienced the disadvantage of plant culture, where they are surrounded by myriads of chimneys continually on the go, knows that excellence is an impossible result.

Those who wish to make a start on their own account in the paths of the divine profession must beware a soot-laden atmosphere as they would the fabled locality of the "Upas tree." Also let them beware those glowing enticements of a good going concern of so many thousand feet of glass at moderate rental. Remember the old adage, No one likes to part with a good horse. Possibly the extensive range of houses

may not be adapted for the successful cultivation of plants for market, which is altogether a different thing than the growing of plants in private establishments. The structures may be lofty and too heavily timbered, which may do for vineries or tall Palms for furnishing, but are altogether unsuitable for growing the ordinary run of market produce. The heating apparatus may be defective in quantity and quality, the ventilation may be insufficient and unworkable, the staging may be in last stage of decay; take out your knife and give the wood a tap or two, much in the same manner as a second-hand carriage dealer raps the panels and spokes to arrive at a sense of their soundness. Then again the water cisterns may be leaky, and out of place by being situated at



FIG. 59.—ANEMONE PATENS OCHROLEUCA.

one end of the house instead of at the middle; and if a span-roofed house such cistern should extend to both pathways, so that the watering pot can be dipped in readily—no filling cans at taps will do for market growers. Then the drainage of stokeholes may be defective, causing the fires to be damped out at a most dangerous moment.

The most favoured localities, where the best market growers are to be found, and who attend Covent Garden Flower Market all the year round, are chiefly established in the sunny valleys of Kent, where there is abundance of that fine yellow loam which is the most suitable for the growth of softwooded plants. The natural soil produces first-class crops of Grapes, and when it can do that we know the value in a horticultural sense; and no doubt it is the circumstance of an abundant supply of good material that favours Kent in the eyes of market growers.

The horticulturist who pays a visit to some of those establishments may be rather disappointed to find them more useful than beautiful.

Range after range of light span-roofs from 5 to 10 yards in length, and from 7 to 12 feet in width, some sloping to the ground, others resting on brick walls about 3 feet high, and ranging from 20 to 60 yards in length, and void of all outside ornamentation, and some of them without a fence or tree to block the sight; such is a market-growing establishment; but when we look inside the houses we see how well they are constructed, how well they are heated, and how instantaneously perfect in ventilation; that the plants themselves seem to know what is required, and are matchless only with themselves. It may be a houseful of *Genistas*, *Ferns*, *Cyclamens*, scarlet *Pelargoniums*, *Fuchsias*, *Marguerites*, or splendid *Mignonette* grown in long narrow pits, heated of course, but so that the lights can be taken off on all favourable opportunities. The culture of all and sundry leave nothing further to be desired.

When we come to consider that the number of such growers may be counted by the hundred, for they are not only in Kent, but located round and round the outer zone of the metropolis, we can well believe the business transactions to be of no little magnitude; indeed, it may be said that the business done in plants and cut flowers shows the healthiest increase of any other profession that can be mentioned; and if the love of flowers as beautiful adornments to civil life be any criterion to go by we may certainly say that the cultivation of plants need have no fear for the future.

Though some of the best market growers may be found located in many parts of Kent, yet excellent produce comes from Clapton, Edmonton, Tottenham, Southgate, and Finchley, but the smoke fiend is fast finding them out. The Londoner himself has to encompass a distance of fifteen miles before he can be sure of beholding the sun in all its brilliancy. Botanists, as they ascend some of the mountains of the world, pass through belts or zones of vegetation, and the higher they travel members of the vegetable kingdom become more dwarf and hardy, and are lost sight of, giving place to mere lichens. Such we may compare the metropolis of the British Empire to one of those mountains, the City being the apex. We find vegetation extremely vacant, yet on examination we find on buildings, such as sacred edifices, the Liverworts, but so covered over with carbon that they might well be termed Sootworts. In moving out from the heart of the City the horticulturist recognises a cosmopolitan in the *Aucuba japonica*, but in a weakly state. Then he comes to the zone of Plane trees struggling to get to the tops of the houses, but never will. A little further come the Limes, Lilacs, and Laburnums, and the under shrubs, such as the *Aucuba*, the *Euonymus*, looking terribly sickly and dilapidated, while for a covering to the walls the Virginian Creeper seems to be the only plant to thrive, and it is not until we get to Acton or Ealing that a zone can be found where vegetation may be said to be fairly healthy and vigorous, and a type of what it ought to be.

Nevertheless, for all the drawbacks against plant life in towns a certain amount of good springs out of the black evil in the atmosphere. Innumerable plants of the commoner kinds, such as red and white Daisies, Arabis, Pinks, and a host of others not annual by nature are made so by the vitiated atmosphere, and thus a great number of small growers who propagate and cultivate such plants for market find a comfortable living.—A. M.

(To be continued.)

VIOLETS IN WINTER.

I WAS quite pleased to read the article by your very able and energetic correspondent, Mr. E. Molyneux, on page 289, and I heartily endorse every word he writes in the praise of sweet Violets. As to their being neglected, I am pleased to say such is not the case in this neighbourhood, for there are Violet frames in most good gardens, and in a few they are quite a speciality. One young lady boasts of never appearing in public without her bunch of Violets when it is possible to procure them, and in the garden here we are expected to have Violets from October to May in a small but continuous supply—a task more formidable than your correspondent would have us believe, especially if a little artificial heat is not at command. Let us consider the very severe winter through which we have just passed. We had six weeks continuous hard frost, many times the thermometer registering over 30°, and on two occasions 37° of frost. Our Violet frames were never opened during this spell of severe weather, and if we had not had a frame which we could enter, with hot-water pipes sufficient to keep out King Frost, where would have been our continuous supply of Violets? I do not wish to imply by these remarks that Mr. Molyneux was not able to keep up the supply of flowers without fire heat, for I know he is one of those men who are difficult to be beaten by anything; but I do wish it to be understood that it is much easier of accomplishment when fire heat can be employed if required, and I maintain that fire heat is an advantage in winter Violet culture if properly applied.

The frame I mention above is really a three-quarter span pit, about 60 feet by 10, in three divisions, with a path along the back, where we root and winter our *Chrysanthemums*. One of these divisions was filled with Violet plants—*Comte de Brazza* and *Marie Louise*, both of which flowered splendidly just when most wanted. One hint is necessary here—do not fumigate Violets if you can avoid it, as they do not like tobacco smoke. We had some *Pelargoniums* on shelves in the same division which required smoking. The Violets were covered with newspapers during the operation, but it did not save them. Almost every tender leaf was marked more or less, while the *Pelargoniums* were uninjured. With the experience of last winter fresh in our minds we have

decided to erect new frames for our Violets, into one section of which we hope to arrange pipes according to the sketch enclosed.—A. HAGGART, *Ludlow*.

[The sketch represents a three-quarter span brick pit, 9 inches above ground on one side, and about 2 feet on the other. The upper part of the walls are 4½ inch (no doubt to be set in cement), for affording a ledge for a flow and return 2 or 3 inch pipe. The pit is 6 feet wide, there is a depth of 2 feet for fermenting materials, and a flow and return pipe for bottom heat is also provided. The desire is to afford ladies an opportunity of gathering Violets in the winter, where litter for covering frames is objectionable. The "American Florist" gives an illustration of a span-roofed Violet house with a central sunk path and side beds, heated by a pipe at the base of the rafters. In such a structure ladies could gather Violets with ease and comfort in winter.]

FUNGOID DISEASES OF PLANTS.*

THE importance of devoting more searching and systematic attention to the diseases of plants has been gaining ground in late years. This is evidenced abroad by the establishment of experimental stations and the publication of detailed and explicit reports, but, unfortunately, in this country very little has been done, and that solely by individual effort. It is true that we have a Government Department, which corresponds to a Department of Agriculture, but the very meagre reports are only additional evidence of the indifference which characterises the "higher powers" in all which concerns the diseases of plants. How disastrous these diseases may be has been exemplified by the damage done to corn crops in Australia, Apple crops in parts of the United States, to Coffee in Ceylon and Mysore, to the Opium Poppy in India, the Cocoa-nut Palm in the West Indies, the Tobacco crops in Australia, the Vine industry in parts of Europe, and now to the Sugar-cane in the West Indies. In nearly all these cases it was not until the diseases became established and a vast amount of injury was done, that any effort was made to combat the disease. There is no reason to doubt that it is possible to check the spread of these diseases if effort is made in time, but the great desideratum is a more extended knowledge of the nature of the parasites, and the methods of remedy which have been applied in similar cases when any one of these inflictions becomes a disaster and a large industry is threatened with ruin, and not till then, do we hear the cry for scientific investigation, and suggestions of remedies.

Those who are practically conversant with horticulture will be ready to admit that diseases in plants may have several causes. They may result from the attacks of insects of various kinds; they may be consequent on the incursions of parasitic fungi; they may result from external injuries; in some cases disease may be as hereditary as in the animal subject; and in a great many cases we venture to think that they are the result of bad or mistaken cultivation. It is not flattering to the culturist to be informed that any failure is due to bad culture, and very few would believe it if they were told; but undoubtedly, speaking from a large experience, we are bound to confess that it is not uncommon to meet with cases in which plants in a diseased condition have been supposed to be infested with fungi, and treated as such, in which no trace of fungi could be found, and the diseased condition could only be attributed to bad cultivation.

It is not our intention to occupy your time with allusion to any other of the diseases of plants than those produced by the attacks of fungi; but before making those observations to which we desire chiefly to direct your attention, we might offer a suggestion or two on a closely related subject. We will suppose for a moment that microbes and ferments are not fungi, but very close relations; yet there cannot be the slightest doubt that they are intimately associated with diseases in animals, and possibly, more than we think, with the diseases of plants. It is not so many years since the discoveries in connection with anthrax determined the question of the presence of bacteria in certain diseases of animals, whilst every year adds further knowledge, which leads to the conclusion that bacteria are not only present, but are the primary cause of many forms of animal disease.

In past times we spoke of zoology and of botany in terms which led to the inference that life in animals and life in plants were quite different things, whereas nowadays we are in the habit of speaking of biology, and thus tacitly confess that, in all essentials, life is the same in plants and in animals. Such being the case, and there are more analogies than we commonly admit, then there may be great similarities between the diseases of animals and those of plants. This was pointed out, on a memorable occasion, by Sir James Paget, and experience strengthens the views he then enunciated. There have been of late years some startling revelations as to the presence and infectious character of microbes in plant diseases; some of these have been, and others are waiting to be confirmed. Only to mention two or three we may instance the Californian Vine disease, that prevalent North American disease, "Peach yellows," another disease called the "Pear blight," and a rotting disease in Melons and Cucumbers. In the last instance experiments proved that the disease could be communicated to healthy plants by inoculation with the juice of diseased Cucumbers. Admitting all this to be substantial, we are face to face with a new aspect of plant disease corresponding to diphtheria, scarlatina, typhoid, and other zymotic diseases of animals, and a question to which horticulturists would do well to keep open ears and observant eyes.

In the case of diseases in the human subject, we know how much

* Lecture by Dr. M. C. COOKE at the Horticultural Club.

depends on an accurate diagnosis of the disease. The symptoms must be studied and compared, and when the true nature of the disease has been ascertained the proper remedies can be applied; but it is useless to think of remedies so long as the true nature of the disease has not been ascertained. Precisely the same course has to be adopted with plants suffering from disease, and it is our first duty to avail ourselves of every facility for determining the nature of the disease. Even if we suppose that any and every man who is engaged in the cultivation of plants has the primary knowledge which would enable him to decide at once whether the disease in question was caused by insects or by fungi, or whether it resulted from some error in cultivation, this would be the farthest step that the majority would take towards an accurate diagnosis. What more would be required may be gathered from some further remarks with which we will venture to trouble you.

Diseases of fungoid origin may be classed in two primary groups, which we may call respectively endophytal, and epiphytal. The former are developed from within—outwards, analogous to small-pox; the latter commence externally and establish themselves on the surface before they penetrate the tissues, analogous to some forms of skin disease. Most important, and most fatal are the forms of endophytal disease which, as we have said, are present, unseen, in the tissues of the plant, before they present any external appearance of their presence. The two most prevalent types of this kind of disease are the rotting moulds, such as the Potato murrain, and the smut and rust fungi, such as bunt and mildew in corn crops, with such diseases of ornamental plants as the Hollyhock disease and the brand which affects the foliage of Sweet Williams, and others of the Pink family. There are some features in common, but there are other considerable divergencies in the life history and reproduction in these two types of moulds and rusts. In order to illustrate the importance which some knowledge of the life history should hold in the estimation of the cultivator we shall advert briefly to some of the phases in that of the rotting moulds, to which the general name of *Peronospora* is usually applied.

Commencing with its simplest initial form, we find that the spore or conidium, produced in great numbers on every fertile thread when mature, is an elliptical, colourless minute body, having a thin outer coating of membrane, with fluid contents. These contents soon become granular, and at length collect at three or four centres, which condense and ultimately are distinctly separated from each other by the growth of a special envelope. Ultimately the membrane of the mother cell is ruptured, and the three or four smaller bodies which have been differentiated in its interior escape, each one furnished at one extremity with a pair of delicate moveable hairs, by means of which these little bodies, now termed *zoospores*, can swim actively in any thin film of moisture on which they may fall. Possibly this film may be on the leaf of a foster-plant. In a short time all motion ceases and the zoospores come to rest, the pair of delicate cilia are absorbed and a germinating thread is produced, the point of which seeks out and enters at one of the stomata of the sustaining plant.

Having once obtained an entrance the thread grows vigorously, and a little mass of threads, called a mycelium, is soon developed within the tissues, capable of spreading itself through the plant which it has infected. In the next stage we discover that this mycelium has developed erect branched threads, which pass out through the stomata again into the external air—sometimes singly, sometimes in tufts. These are the fertile threads of the mould, which soon produce a single conidium at the tip of each of the branchlets, just like the original conidium whence the zoospores were developed. When fully matured each fertile thread produces a score or more of these conidia, which fall away when ripe, and then undergo transformation into zoospores, ready and active, prepared to pass through the same stages again, and indefinitely multiply the pest.

This history represents the ordinary conidial fructification of the mould, by means of which it is passed from leaf to leaf, and from plant to plant, until the whole area is affected. How many of the minute conidia may be transported to a considerable distance by a breath of wind it is impossible to say, but it is known that they are capable of suspension in the air, and that they may be carried to any spot where there is sufficient moisture for the conidia to be differentiated into zoospores, and afterwards come to rest and germinate. This process takes place in the summer and autumn, but there is yet another means by which the pest is disseminated in the spring.

The mycelium which flourishes within the substance of the plant infested is capable of producing larger globose bodies, chiefly within the stems, concealed from external view. These globose bodies secrete a thick envelope, mostly of brownish colour, and after development they remain in a state of rest within the stems during the winter. So that old stems of plants which are infested with the mould during the autumn conceal within themselves during the winter a large number of these "resting spores." As the old stems rot and decay the resting spores are set free in the spring, and then a period of activity commences. The contents of these globose bodies become differentiated into a considerable number of zoospores, which ultimately escape by a rupture of the thick envelope, armed with vibratile cilia, and in all respects like the zoospores which are developed from the conidia. These active zoospores swarm over the damp soil, and are carried by the spring rains into proximity with the young seedling leaves of the new crop of most plants, then the cilia are absorbed, germination commences, the delicate threads of mycelium enter the nearest stomata, and infection results. In this way, in addition to the spread of the infection from the conidia in the summer and autumn provision is made for an attack on seedlings in the spring. It will be inferred that in order to check the spread of these diseases

the conidia must be destroyed in the autumn to prevent their extension to healthy plants, and the destruction of all rotten *débris* must be carried out during the winter so as to extirpate all the concealed resting spores, and thus prevent the infection of seedlings in the spring. Thus it will be seen that a knowledge of the life-history of these parasites will suggest the best methods to be employed in their destruction.

Time forbids any illustration of the growth and development of the rust and smut fungi, so that we must rest content with the intimation that in a large number of these also winter spores, or resting spores, are produced, which remain in quietude through the winter and awaken to life and vigour in the spring. Perhaps the agriculturist rather than the horticulturist is most interested in this group of diseases, which are greatly addicted to the cereal grasses, although some of them attack garden plants.

The other primary group of fungoid diseases, which we have called *epiphytal*, are those in which the fungus makes its appearance superficially on the leaves and other green parts before the internal tissues are affected, and attain their purpose by choking up the stomata, preventing transpiration, and killing the plant by suffocation. The mycelium of delicate vegetative threads spreads over the surface like a white film, or a cottony felting, which in some cases cause the leaves to appear as if they had been dusted with flour or chalk. This appearance is very familiar to you in the hedge Maple, the cultivated Pea, the Hop, cultivated Roses, and the well-known *oidium* of the Vine. In such cases there is no constitutional disease to be dealt with, or rather, we should say, no affection of the tissues. If we are successful in getting rid of the external pest the plant is left comparatively healthy. The natural inference would be that this form of disease is more amenable to the action of fungicides than the endophytal, and its presence may be detected in its earliest stages before much mischief has been done. Hence it is a matter of considerable importance to the cultivator that he should be able at once to decide for himself whether he has to deal with an endophytal or an epiphytal parasite. Having this knowledge he will be able to apply such remedies as experience has taught him are most successful with each of these forms of disease.

It is hardly necessary to remind practical men that there are numerous forms of fungi which establish themselves on tissues in which the vitality is exhausted; on spots which have been caused by other agents, with which fungi have had nothing to do; and that such fungi are not true parasites, but merely saprophytes. They at least offer no occasion for alarm.

The conclusion to be arrived at from these desultory remarks is, the importance of acquiring knowledge, not so much of the names of species as of the life history, and especially of the methods of reproduction, in certain important groups. No empirical methods of plant treatment will be more successful than empiricism with animal disease. There is no panacea which will cure all sorts and conditions of plant disease. The only universal remedy lies in the acquisition of practical knowledge, and to this end we have often felt the great need of some authoritative manual of all the more prominent of plant diseases which could be in the hand of all who are interested in horticulture. Such book would give the descriptions of the diseases, with indications of such remedies as had been found effective, or might be tried with some hopes of success. You are well aware that the Germans, for instance, are far ahead of us in this respect, and possess elaborate and exhaustive treatises on vegetable pathology, whilst the British horticulturist, unless he is fortunate enough to be able to read German, is compelled to flounder along in ignorance with no other guide than his own experience.

If you will permit the suggestion, it seems to us that the whole subject of plant disease is one of increasing interest and importance. That it is intimately associated with profit and loss, as you cannot forget that it has been with the Potato disease and the Vine mildew, and may be yet, not only with the growth of Grapes, if the American Vine mould becomes established with us, or even with the Peach, Apple, and Pear, should you still consider them to be worthy of cultivation. The only advice that we can tender is an increased acquaintance with the life history of some of the most important and typical diseases. The acquisition of all possible information as to the antidotes or remedies which have been tried and found to be successful. And lastly, an untiring effort to discover the tendencies and predisposing causes of diseases, remembering that "prevention is better than cure," for if there is any science in horticulture it should possess some power to struggle against adverse circumstances and devise means to circumvent the most insidious of foes.



HARDY FRUIT GARDEN.

Outdoor Figs.—Figs can only be cultivated in favourable situations, chiefly against warm south walls where abundant sunshine is available to develop the fruit and ripen the growths each year. The next most important points in cultivation are a firm, restricted, not over-rich root run, and a thin disposal of the branches on the space available

for training the trees. The best soil is a calcareous loam, that overlying chalk being suitable, and sufficiently fertile in character, warm, well drained, and not too deep. When the roots are allowed to descend into uncongenial subsoil or even deeply into rich soil, strong succulent growths are developed, which are invariably unfruitful. These tend also, by encouraging others of like nature, to overcrowd the trees. A hard impervious bottom does this the most effectively. Lime rubbish mixed with the soil improves it for Fig cultivation where not otherwise suitable. It is seldom necessary to add manure.

Planting.—April is a suitable month for planting young trees from pots. If the roots are numerous and matted together the soil should be shaken away and the fibres disentangled, spreading them out evenly in their new position between layers of soil, which may be pressed firmly about them.

Pruning.—Newly planted examples if not already furnished with several branches ought to be pruned back to several buds in order to establish such, training these fan shape over the space and originating others from them for fully furnishing the trees.

Pruning Established Trees.—With due attention to judicious training in the first instance, and so to avoid overcrowding at any period, little annual pruning is required. Under such conditions the wood made is short-jointed and fruitful owing to continuous exposure to the influences of light, air, and sun. Thinning out rather than shortening back acts best, because the Fig bears at the points of the previous year's shoots, and to prune these away would entail loss of crop. There is, however, a system of pruning the Fig which admits of one half the shoots being pruned closely to one or two buds and the other half retained at full length for bearing. Pruning of this kind may be done in the autumn, efficient protection being afforded the trees in severe weather to prevent injury to the bearing wood. Injured shoots or any not wanted may either be cut out or shortened back to low buds. In the latter case shoots will, during the season, be produced for the following year.

Mulching Strawberries.—This is the best season to give a general mulching of manure to the oldest established fruitful beds which need the most assistance. A mixture of cow and horse manure is suitable. On heavy soils let horse manure predominate, fresh cow manure being too compact and cold for mulching such soil. It is best in any case to use it sparingly now on Strawberry beds without abundance of straw or other light material with it. The solid parts of the manure used serve as nutriment for the roots, the rain washing the beneficial qualities gradually into the soil among the surface roots. The light and straw portions become blanched and clean by the time the fruit is ripe, forming an excellent bed for the fruit to rest on.

Mulching serves other purposes besides feeding. It maintains the soil in an equable condition of moisture throughout the season and attracts roots to the surface, where they multiply rapidly. Previous to applying manure unsightly old foliage should be trimmed off and strong weeds growing in the beds uprooted. Hard and trampled spaces between the plants ought to be forked over, only disturbing the parts unoccupied with roots. Small and seedling weeds may be covered with the mulching where they cannot be buried in forking over the ground.

Young Strawberry Beds.—If recently planted beds are lightly hoed this serves to promote growth and at the same time kill weeds. Several hoeings may be carried out before mulching these plants, as the soil being rich enough for their requirements at present does not need additional food. Later in the season a light mulching will act beneficially in conserving the moisture then present in the soil and prevent rapid evaporation, which prior to that period may be counteracted by the frequent hoeings.

Mulching Gooseberries and Currants.—If these are likely to need assistance at the roots during the summer a thick mulching of rich manure may be afforded now before the foliage becomes dense. Both Gooseberries and Currants root abundantly near the surface, and if the fibres cannot find due sustenance when they need it the fruit will be small and deficient in quality, the bushes also being more liable to attacks from insects. Spread the manure under the branches as far as the latter extend.

FRUIT FORCING.

Peaches and Nectarines—Earliest House.—The stoning process being over with the earliest varieties, they may be given a temperature of 70° to 75° by artificial means, but it is not good practice to maintain that constantly. Therefore allow the temperature to fall to 65° or even 60° on cold nights, raising the heat to the figures before named early in the day, keeping through this at 80° to 85° from sun heat, ventilating by the top at 70° to 75°, and opening the front at 80°, so as to secure a circulation of air and prevent the temperature rising too high. A stagnant atmosphere will be avoided by admitting a little air constantly. Close the house at 80°, and sufficiently early to allow of an advance to 85° or 90°, the trees being well syringed and good atmospheric moisture secured, which will insure the fruit swelling to a large size, but the fruit and foliage must become fairly dry before night, and clear water be used, as spring water is liable to leave a stain on the fruit.

Remove the leaves over or in front of the fruit, and turn this to the light, as it adds greatly to the value of the fruit when it is well coloured from the apex, besides improving the flavour. Syringing must cease when the fruit commences to soften for ripening, otherwise the skin may become cracked, and it then is spoiled in appearance and acquires an unpleasant, musty flavour; but a genial condition of the atmosphere should be maintained for the benefit of the foliage by damping the paths and borders twice a day. Keep the roots properly supplied

with water or liquid manure, using the latter in an available form, such as nitrates of potash and soda, when growth in either shoots or fruit is desired, as crude material in the late stages of swelling may impart an unpleasant flavour to the fruit through its not being converted into assimilable matter. Soot has this singular characteristic, and, in less degree, blood and other animal manures. A mulching of some partially decayed lumpy manure, about an inch thick, will help to keep the soil uniformly moist and encourage surface roots, whilst the nutrient matter will be in such available form as not to prejudice the quality of the fruit.

Regulate the flow of the sap by stopping all gross shoots before they have time to draw supplies from the weakest parts of the trees. Allow the leading shoots, particularly of young trees, to extend over uncovered parts of the trellis, and pinch out the successional bearing growths when about 14 inches long. In houses that contain such varieties as Hale's Early, A Bec (one of the finest second early Peaches), with Royal George, Stirling Castle, and Grosse Mignonne, and the Nectarines Lord Napier, Elruge or Stanwick Elruge, which were started about the middle of December to afford ripe fruit at the end of May or early in June, the night temperature must not be more than 60° to 65° until the stoning is completed, and 70° to 75° by day with gleams of sunshine, with 5° to 10° advance on bright days, and a free circulation of air between 70° and 75°, increasing with the advancing temperature. The prolonged cold weather had retarded forcing considerably, but no attempt at accelerating the ripening of the fruit may safely be indulged in until the stoning is completed, then they will bear a considerable advance in temperature. Pay particular attention to syringing the trees, using clear tepid rain water twice a day, and see that every part is thoroughly washed, as it is very important to have the trees free from red spider before the fruit commences ripening, otherwise it will flourish amazingly when the syringing is discontinued, and prejudice the trees in the present and next year's crops.

Second House.—The trees in this structure started at the new year are making satisfactory progress in growth, the disbudding being completed, the fruit thinned to few more than required for the crop, and the shoots that are to follow those now fruiting being laid in. Always allow abundance of room in the ties, as throttling the shoots has a tendency to induce gumming as well as being disastrous to the growths. Allow no more growths to remain than are necessary for next year's bearing or for the extension of the trees. Stop gross growths or remove them where practicable, as it is highly important the sap be equally distributed and an uniformity of vigour maintained through the branches of each tree. Shoots retained to attract the sap to the fruit should only be allowed moderate extension, stopping them in the first instance at three or four joints of growth. Pinch laterals at the first joint and at every subsequent one as made. Strive to so distribute the growths that the foliage will shade and protect the main branches from the direct rays of the sun as the season advances. Avoid overcrowding the trees with more foliage or growth than can have full exposure to light and air. Ventilate freely and carefully, avoiding cold currents of air and sudden depressions of temperature. As the fruits are swelling fast thin them if too thick, for with the trees in good health the fruit will stone satisfactorily and the size be correspondingly enhanced, as every fruit not required for the crop and left until the final thinning after stoning takes from the size of those allowed to ripen. Water the inside borders copiously, and afford nourishing rather than stimulating food. Dissolved bones three parts, muriate of potash two parts, and basic slag or gypsum 1 part, mixed, and 4 ozs. applied per square yard, is a good dressing for stone fruits, supplying it every three or four weeks and washing in moderately.

Third House.—Trees started early in February must be frequently examined for disbudding, this being best done gradually, and commencing with the strongest parts of the tree, retaining a shoot at the base of the current year's bearing wood, and leaving no more shoots on the extension than will be required for furnishing the trees with bearing wood at 15 inches apart, pinching the others on these to two or three leaves to form spurs. A shoot on a level with or above the fruit must be retained to attract the sap, pinching it at the third leaf. As the fruit is swelling freely remove those worst situated, leaving only a few more of the most promising than will be required for the crop, one to every square foot of trellis covered by the trees being ample for the large-fruited varieties of Peaches, and the medium-sized sorts and Nectarines should not be left closer than every 9 inches square to secure large, well-finished specimens. Syringe early on fine mornings, give a little air shortly afterwards, gradually increase it, and close about 3 P.M.; but if the weather be warm and bright later closing must be practised, as soft growths are induced by closeness.

Fourth House.—The trees started early in March are out of bloom, having set the fruit well, and having trace of aphides should be syringed with some approved insecticide or an infusion of quassia chips, 3 ozs. to a gallon of water, boiling about a quarter of an hour, then straining, and adding 2 ozs. of soft soap, dissolving and making up to 1 gallon, as there is some reduction on boiling. This mixture is good against brown as well as green fly, also effective in preventing red spider. If fumigation or vapourising be had recourse to it must be done very carefully, as an overdose injures the foliage and causes the fruit to fall. Syringe moderately in the morning and on fine afternoons, always early enough to allow the foliage to become dry before night. Disbud gradually, and rub off all small and badly placed fruits as soon as the most promising take and retain the lead in swelling. Ventilate freely on all favourable occasions, and close early with a view to husband the sun heat, but avoid a close atmosphere, admitting a little air constantly at the top of the structure to prevent a vitiated condition.

Late Houses.—The trees are a sight with flower buds expanding and opened blossoms. Ventilation must be freely given consistent with safety from frost, it being a good practice to turn the heat on in the morning so as to raise the temperature to 50°, and keep it at that with a gentle circulation of air, turning off the heat early in the afternoon so as to allow of the pipes cooling before night, and the temperature falling to 45° or 40°, which is quite safe, and these conditions ought to be secured after the blossoms expand, with a little air to prevent the deposition of moisture through the night on the flowers. If bees do not visit the flowers recourse should be had to artificial fertilisation, either by shaking the trees or dusting the flowers when the pollen is ripe with a bunch of feathers, Pampas Grass plume, rabbit's tail mounted on a small stick, or camel's hair brush, but the best aids to setting are perfectly developed blossoms and a genial, well-aërated atmosphere.

Figs.—*Earliest Forced Trees in Pots*—Early Violet and St. John's are now being succeeded by White Marseilles and Brown Turkey. To secure perfect ripening and high quality, watering must be gradually reduced and syringing over the trees cease, but trees swelling their fruit should be assisted with weak liquid manure twice a week and the foliage kept clean by syringing at closing time, this being discontinued directly the fruit gives indications of ripening. A temperature of 60° to 65° at night, 70° to 75° by day, advancing to 80° or 85° from sun heat, is suitable, closing so as to increase to 90°, but air must be afterwards admitted so as to allow the pent-up moisture to escape and prevent the deposition of moisture on the fruit, which settling on the apex is apt to cause its decay. This should be avoided by a circulation of rather warm and moderately dry air.

Early Forced Planted-out Trees.—A mulching of sweet, decayed manure about an inch thick is of essential service in encouraging surface roots and supplying nourishment not likely to induce grossness. Such mulching, if kept in a moist state and added to from time to time as reduced, will be full of active feeders by the time the trees need most assistance in order to perfect their crops, and substantial food, such as superphosphate 5 parts, nitrate of potash 2 parts, and gypsum 1 part, mixed, using 4 oza. per square yard every three or four weeks or more distant according to requirements, will secure sturdy growth (other conditions being favourable), and good results in the first and second crops. Trees in borders of limited extent and those of short-jointed fruitful habit will require copious supplies of water or liquid manure. Syringe twice a day in bright weather, occasionally in dull, and maintain a genial atmosphere by damping. Ventilate freely in favourable weather, with the object of securing stout growth and leathery, healthy foliage. Any kind of shading is injurious and must be guarded against by thorough cleanliness, pinching out the young growths and thinning out all the overcrowded shoots. Maintain the temperature at 60° to 65° at night, 70° to 75° by day, advancing to 80° or 85° from sun heat, closing so as to run up to 90° on fine afternoons.

Succession Houses.—Disbudding or thinning the growths, regulating the terminal and successional shoots, and stopping the spurs at the fifth leaf must have timely attention. Afford a light mulching and feed as advised in the preceding paragraph. Maintain the night temperature at 55° to 60°, 65° by day artificially, 70° to 75° from sun heat, which ought not to be exceeded without full ventilation, as it is very important the growth be stout and the foliage have good clean substance. When the trees are in full leaf the night temperature should be maintained at 60° to 65°, 70° by day, allowing to rise to 80° or 85° from sun heat, closing early with abundance of moisture.

Late or Unheated Houses.—The trees must have attention in pruning, thinning the least fruitful growths and the old and bare so as to afford space for the successional, avoiding overcrowding, as it is necessary the growths have abundance of light and air. Allow the shoots for bearing to grow somewhat loosely with their points to the light. Stopping must play an important part in cool houses. Pinch at the fourth or fifth joint on the young wood, which will assist the swelling of the fruit and induce the trees to break and produce short-jointed wood from the base of those in bearing. Ventilate freely at and above 50°, advancing to 65° from sun heat. The border should have a thorough watering if dry, repeating as necessary to bring it into a thoroughly moist state, afterwards mulch lightly with short manure. Figs in unheated houses do not require nearly so much moisture as those in heated structures, but an occasional damping will be necessary to maintain a genial condition of the atmosphere, ventilating freely on all favourable occasions, especially in the early part of fine days so as to secure sturdy, short-jointed wood and well developed leathery foliage.

THE FLOWER GARDEN.

Alternantheras.—Where large numbers of these are used, now is the time to insert cuttings. Pits or frames just cleared of Violets are handy for the work. Turn out some of the soil, form a shallow mild hotbed, and cover with 4 inches of fine light soil, facing this with sharp sand. Keep the frames close till the soil is well warmed, then if there is no likelihood of overheating, put in the cuttings. Every little piece will grow, and they may be dibbled in 3 inches apart each way. Kept close, shaded from bright sunshine, uniformly moist and matted over during cold nights, all will root in a week and develop into good plants. They ought to be duly hardened and moved direct to the beds. Smaller numbers may be rooted in shallow boxes, placing these in a warm house or frame.

Iresines and Coleuses.—There is yet time for raising these richly coloured summer bedding plants. The tops may be rooted in pits and frames much as advised in the case of Alternantheras, or they may

be rooted in pots or pans in propagating frames, transferring them to small pots or boxes after they are rooted. Not till the middle of May should there be any hardening, the second week in June being early enough for planting.

Perilla nankinensis.—This annual still finds favour with many as a bedding plant, and succeeds well in the back rows of ribbon borders, affording a good foil to variegated Pelargoniums and shrubby Calceolarias. It grows rapidly, and if seeds are thinly sown at once in pans or boxes, and placed in a warm frame or other heated structure and shaded from bright sunshine, germination will soon take place. They may be planted direct from the seed pans or boxes.

Bedding Beet.—When not grown too strongly the bronze purple leaves of Beet prove very effective either in masses, patches, or lines. Dell's Crimson is a suitable variety, and in poor soil may be sown in front of lines or as an edging to Calceolarias and tall-growing Zonal Pelargoniums. Late in April or early in May is a good time to sow the seeds where the plants are to grow, or the seeds may be sown in boxes under glass, and transplanting be resorted to. The stronger growing Chilian or Brazilian Beet is more fit for new shrubberies or for grouping in large beds. It is the richly coloured midribs and stalks that make these ornamental, and the colours are most pronounced when the plants are grown in rather poor soil.

Ricinus.—Seeds of these germinate in less than a week, and when raised very early the plants are almost certain to become leggy and starved. R. cambodgensis and R. Gibsoni are of a sturdy habit of growth, seldom exceeding a height of 4 feet, in colour are of a deep purple, and are the best for the centre of a large bed or for growing singly among flowering plants. Sow the seeds singly in 4-inch pots, and place in brisk heat. Directly the plants are up set them on a shelf near to the roof glass. By the middle of May they will be ready for cooler quarters, and hardening will be complete by the second week in June.

Amaranthuses.—A. melancholicus ruber is sometimes used as a substitute for Iresine Herbsti, while the more elegant, taller-growing A. nobilis pyramidalis, A. salicifolius, and A. tricolor are very effective as "dot" plants in mixed beds. Unfortunately all are very tender. Seeds may be sown now, and will germinate quickly in a brisk heat. They may, where at all crowded, be pricked out in other boxes of light soil, or in the case of the taller growers be placed singly in 3-inch or rather larger pots, keeping them in a light warm position till well established in their fresh quarters.

Marigolds.—African and French Marigolds are very effective in mixed borders, and the Tagetes, or miniature forms of the latter, are very good substitutes for shrubby Calceolarias. Sow the seeds now thinly in boxes, and place in gentle heat to germinate. Transfer to cooler quarters before the plants become leggy, and if the latter are not crowded there will be no necessity to prick them out in other boxes or frames, as they transplant readily without much soil being preserved about the roots.

Zinnia Haageana imbricata flore-pleno.—This is a capital substitute for yellow Calceolarias, and is particularly effective in ribbon borders. Late in April is quite soon enough to sow seeds. Pans or boxes of good light soil should be used and the seeds be sown thinly, giving the benefit of a little heat. Sometimes they are planted out direct from the pans or boxes, but if at all crowded should be first pricked out in other boxes or beds of soil.

Miniature Sunflowers.—What is known as the New Miniature ought to be grown everywhere, and in particular where cut flowers are in demand. The plant is of a very branching habit of growth, attaining to a height of 3 feet or thereabouts. The flowers are small, single, yellow in colour with a dark centre, and borne on long slender foot-stalks. Sow the seeds thinly in pans or boxes in gentle heat, harden in good time, and plant where they are to flower. Any of the taller growing varieties may be similarly treated.

THE BEE-KEEPER.

APIARIAN NOTES.

THE SEASON IN PROSPECTIVE.

ARE we to have a good honey season? is a question more easily asked than answered. Generally speaking, flowers and bees come simultaneously. In one sense the present year may not be an exceptional one, but the fact cannot be disguised that hives, as a rule, are not more than one-third the strength they were two months ago. Since Christmas north-westerly and north-easterly winds have prevailed, consequently we have not as yet had a single genial spring day. The bees have not obtained more than a few minutes at a time to fly, and many which went out never returned, the ground everywhere within range of the flight being thickly strewn with chilled bees. This is the story of every bee-keeper I hear from.

There is this hope; all hives well provisioned are furnished with much brood and many young bees, and the loss of adult bees

daily is less than the supply of young additions creeping out of the cells. They very soon gain strength, and when genial weather comes, may be as strong as if the spring had been mild. The great strain on the queens, owing to many eggs being eaten when hives are so much depopulated, renders it imperative for the bee-keeper to commence raising young queens to take the place of older ones at the earliest opportunity. When queens are sorely taxed and hives weaker at this season than we might expect, drones are brought forward in such hives as early as if they were normally strong.

Taking my data from former and long experience, that with good weather and a profusion of bloom on the respective honey-yielding flowers, nothing serious has occurred to damp the hopes of the ardent bee-keeper. It is now the middle of April, and buds of many fruit and other trees which I have in some seasons witnessed in blossom on the first of this month are scarcely showing green, favouring bee-keepers greatly, especially those situated in late districts.

It depends much on the course bee-keepers pursue and their management generally whether they will reap their full yield of honey. There never was a season in my time so disastrous to hives as the present one; it is therefore necessary, if the maximum profit is expected, to keep the bees breeding; this may be done if hives do not lack anything necessary, but neglect of any one thing will assuredly tell against both bees and bee-keepers. Feeding judiciously, keeping the interior of the hives free from damp and draughts, and superseding all old with youthful fertile queens, will work wonders, which to many not accustomed to introducing young blood appear miraculous. By proper attention to weak hives they may become before the close of the honey season the best. In spite of the drawbacks of the untoward season, with fine summer and autumn weather it may be the best honey season we have experienced; this being the wish of many besides—
A LANARKSHIRE BEE-KEEPER.

BEES UNSATISFACTORY.

"I HAD three stocks of bees in frame hives, and during last summer, although not a favourable season, two of them filled a crate of twenty-one sections each, and in the autumn had sufficient sealed stores in brood combs to carry them over the winter without any feeding. The other stored no surplus, but appeared to have sufficient sealed stores to winter on. Being anxious to see if all was right I have lately examined them, and found the two former strong in bees with ample stores, but the bees in the latter hive were all dead, and not a particle of food remained in the hive. Can you tell me the cause, as when covered up for the winter they appeared to be quite as well off for stores as the others? Is it owing to the severe winter, or do you think it a case of foul brood?"

The queen in all probability was old, and would not commence her maternal duties till late in the season, consequently when the honey flow came, and it was of short duration, the adult bees would have dwindled down very much, and would not be strong enough to gather but little more honey than was required for their daily consumption. I have often noticed when a colony is not headed by a prolific queen the workers appear to lose heart. When this is the case they do not work freely, and it is much better to unite them to another stock or introduce a young fertile queen from a strong colony.

In this instance I do not think the severe winter can be blamed for the loss, but the bees from the strong stocks would probably rob them, as robbing is often very prevalent in early spring and autumn when the outside supplies are falling short. I always reduce the entrance of all my hives when robbing is likely to take place, as should a stock by chance be weak the inmates have a much better chance of repelling the invaders than if the entrance was left open its full length, as when food is getting scarce a strong colony can always be depended on to protect its stores. It is the weak that suffer, and when attacked, unless steps are at once taken to prevent it, a hive is soon cleared of its stores and the bees die of starvation.

In a very bad case of robbing it is sometimes necessary to remove the stock attacked some distance from its original stand, but in ordinary cases, if the entrance is reduced so that only sufficient space is left to allow one bee to pass at a time, and a little carbolic acid is sprinkled on the alighting board or elsewhere, if the robbers are likely to gain admittance, this will soon have the desired effect. When once a serious case of robbing takes place in an apiary it sets the whole in commotion, and unless checked in its early stages much mischief may be done, resulting in the loss of several good stocks of bees which, under careful management, would in time have paid a handsome profit for the trouble bestowed on them. Should the stock be short of stores feed at night with warm syrup.—AN ENGLISH BEE-KEEPER.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Split Walnut Tree (Somerset).—The stem has been split by the frost, and we do not know that you can do better than plaster the fissure well over with a thick coating of cement.

Lily of the Valley Failing (Nemo).—When Dutch crowns have to be relied on for early forcing failures such as yours frequently occur. The variety is evidently not suitable for the purpose. We do not suggest there are no varieties grown in Holland that will not force, but it is well known that, as a rule, Dutch are inferior to Berlin crowns, also to many grown in England, for the production of early flowers with the aid of brisk artificial heat.

Agathaea coelestis (C. F.).—This plant, commonly known as the Blue Marguerite, grows and flowers freely in loamy soil in a very light position in a greenhouse, also when planted out in good soil in an open position in the garden at the same time that Heliotropes and other tender plants are "bedded out." Cuttings of the young shoots root readily in moist sandy soil in a close heated frame, or under a bell-glass in a warm greenhouse.

Camellia Leaves Spotted (E. G.).—The brown spots are caused by the sun acting powerfully on the parts whilst wet, or excessive evaporation from their surface when covered with water. It may be caused by drip or condensed moisture falling on the leaves. Washing them will not prevent the spotting, but a freer circulation of air would be beneficial, especially in the early part of the day. A solution of 2 ozs. of Gishurst compound to a gallon of water is quite strong enough for washing the leaves, and is suitable for the purpose.

Cockroaches (A. B. C.).—The specimens represent the largest of our native cockroaches, the *Blatta germanica*. It is not a very common species, seldom occurring in houses, but being found in fields amongst heaps of rubbish, dead leaves, and sometimes in hollow trees. If introduced to a garden it might soon increase and become troublesome if circumstances were in its favour. For the familiar *B. orientalis* sometimes quits the kitchen and makes excursions to gardens and frames where, owing to its nocturnal habits, it may do mischief frequently and escape detection.

Irises from Seeds (X. Y. Z.).—Seed may be sown in sandy soil, preferably as soon as ripe, in pans or boxes, placed in a cold frame, keeping the soil moist. Sow thinly to prevent disturbing the seedlings, but they may be gently raised when large enough and pricked off a few inches apart. After June they should have full exposure, and for safety may be wintered in a frame, planting them out the following spring, or preferably assigning them their flowering quarters in autumn, protecting the roots with a mulch of cocoa-nut fibre refuse. Efficient drainage must be given, and the less the roots are dried the better. The situation should be fully exposed to the sun, yet protected from easterly or strong winds. Roots sufficiently strong for flowering may be expected after three years' growth.

Crop Constituents (Exam.).—You ask for something concise. We know of nothing more compact yet comprehensive on the subject than the following, which we take from an excellent chapter on the Chemistry of Garden Crops, in Sutton's "Culture of Vegetables and Flowers." * The principal garden crops are grouped in two classes:—"In Class 1 phosphates and potash predominate. This class includes the following: the Pea, containing phosphates 36, potash 40; Bean, phosphates 30, potash 44; Potato (tubers only), phosphates 19, potash 59, soda 2, lime 2, sulphuric acid 6; Parsnip, phosphates 18, potash 36, lime 11, salt 5; Carrot, phosphates 12, potash 36, soda 13, sulphuric acid 6; Jerusalem Artichoke, phosphates 16, potash 65. In Class 2, sulphur, soda, and salt predominate. This class includes the following: Cabbage, phosphates 16, potash 48, soda 4, lime 15, sulphuric acid 8; Turnip, phosphates 13, potash 39, salt 10, lime 10, sulphuric acid 14; Beet, phosphates 14, potash 49, soda 9, salt 20, lime 6, sulphuric acid 5. You had better procure the work and read the whole chapter. You will also find an enormous amount of useful information packed in over 400 pages. The sixth edition of the work has recently been issued. It is in every way creditable to the great firm that has produced it, and more need not be said.

* Sutton & Sons, Reading; Simpkin, Marshall, Hamilton & Co., London.

Mentzias (*T. P.*).—These plants are hardy, annual, biennial, or perennial herbaceous plants, the flowers being orange or white, solitary, racemose or cymose, opening only during sunshine. They grow 1 to 2 feet high or more in rich soil. The species are showy and well worth growing. Any ordinary garden soil suits them, and the seed may be sown early in April where it is to remain; but in dealing with doubtful species it is desirable to raise the plants in gentle heat in spring, and when the seedlings are sufficiently large they should be placed singly into small, well drained pots, keeping them near to the light, not too close and not giving too much water. Some of the seedlings could be planted out, others kept in pots and wintered, if not annuals, on a dry shelf in a cool greenhouse or protected frame, planting out the following spring after well hardened.

Grubs in Turf for Potting Purposes (*T. J. M. Dyke*).—The "caterpillars" are the grubs known as leather-jackets, the larvæ of the daddy longlegs or crane fly (*Tipula oleracea*). They feed on the roots of grasses and many other plants, gnawing the stems just below the surface of the ground, and thereby totally, or according to the damage, destroying the crop. The grubs are extremely difficult to kill by means of chemicals, the safest being nitrate of soda, the soil being spread about 1 foot thick and an ounce per square yard sprinkled on it, letting lie a few days and then turning. Another plan is to use traps of pieces of Carrot, Mangold Wurtzel, Potato, or Turnip affixed to sticks and sunk a few inches within the heap. These baits must be examined every day for a few days, and then every other day, the grubs found attached to them being removed and destroyed. By continuing this process, renewing the baits as required, the heap may be freed of the grubs, as they will make for the surface of the stack in quest of food.

Tuberous-rooted Begonias (*J. P. K.*).—We expect to see thousands of Begonia plants raised from seed sown a month or two ago flowering beautifully this season, both in pots and planted out in flower beds. Grown well, under suitable conditions, the plants cannot help flowering the first season. Stout short-jointed cuttings, neither too soft nor too firm, root readily in a mixture of sand and leaf soil or cocoa-nut fibre refuse, with the pots plunged in a gentle hotbed of 80° or 85°, in a frame or other suitable place having a temperature of 60° or 65°, not overwatering, yet affording adequate moisture. Daily sprinklings are fatal to success if the soil is dry below. Cuttings root freely in the summer inserted in light soil under hand-lights in a shaded position in the garden; indeed, many are rooted without the aid of glass. The less the plants are shaded the better, a little tiffany usually sufficing. In some houses they grow fairly well under light permanent shade, such as that from summer cloud. The most luxuriant and floriferous plants in open air beds are not artificially shaded, but have abundance of roots working freely in rich moist soil.

Sowing Rhododendron Seeds (*V. W.*).—For the sowing of these seeds peat should be broken up and placed in a cold frame to the depth of about 2 inches, that placed on the top being very fine. The surface must be pressed down and made as level and even as possible, and the seed sown towards the end of this month. It must not be covered, but after sowing give a good watering with a fine-rose can. Great care must be taken that the surface never approaches dryness, not even after the seedlings appear. The lights of the frame in which the seed is sown should be whitewashed and kept close to prevent evaporation, and even when this is done it will be necessary to lay mats over the frame during very bright weather. As soon as the surface of the soil is green a little air must be admitted to prevent the seedlings damping off. They must be gradually exposed to light and air until the lights can be drawn off. This should be done at first during dull or showery weather, but care must be taken that the soil in which the plants are growing does not become saturated. When the seedlings are large enough, say during the early part of July, they should be pricked off into other frames or boxes, where they can be shaded until established, and protected with lights during the winter. It is not necessary to prick off the seedlings singly; on the contrary, they may be transplanted in little patches, leaving an inch or a little more clear space between each patch of plants. The next season they will fill up this space. They should remain undisturbed during the winter, giving them the protection of mats or fern during severe weather. In spring, when all fear of frost is passed, the young plants may be transplanted 6 inches apart, so that a small hoe can be used amongst them.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of seedling plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*J. D.*).—1, *Celsia arcturus*; 2, *Dendrobium Devonianum*; 3, *Fabiana imbricata*; 4, *Grevillea robusta*. (*G. M.*).—*Polygala Dalmaniana*. (*Oxon.*).—1, *Cœlogyne ocellata*; 2, *Oxalis rosea*; 3, *Cœlogyne barbata*; 4, A very good form of *Lycaste Skinneri alba*. (*Amateur*).—Through inefficient packing all your specimens were dead when they reached us; send fresh examples, packing as directed in the above rules, and we shall be glad to assist you. (*Nemo*).—1, *Schomburgkia crispata*; 2, *Oncidium flexuosum*; 3, *Dendrobium Farmeri*. (*E. B.*).—*Vanda suavis*. (*P. F. W.*).—1, *Cibotium princeps*; 2, *Cyathea Smithii*; 3, *Polypodium*, possibly *verucosum*; 4, *Athyrium Filix-foemina orbiculare*; 5 and 6, varieties of *Dendrobium nobile*. (*Oaks*).—A sub-species of *Moræa*, called *Homeria*, and very nearly allied to the *Iris*.

COVENT GARDEN MARKET.—APRIL 17TH

MARKET very quiet, with prices practically unaltered.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per half sieve ..	1	6 to 4	6	Grapes, per lb.	1 6 to 3 6
" Nova Scotia, per				Lemons, case	10 0 15 0
barrel.. ..	10	0	21 0	St. Michael Pines, each ..	2 0 8 0
Cobs, per 100 lbs. ..	20	0	21 0	Strawberries, per lb. ..	2 0 6 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb. ..	1	6	to	2	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	0	Onions, bushel	3	6	4	0	0
Carrots, bunch	0	3	0	4		Parsley, dozen bunches ..	2	0	3	0	0
Cauliflowers, dozen ..	3	0	6	0		Parsnips, dozen	1	0	0	6	0
Celery, bundle	1	0	1	3		Potatoes, per cwt.	2	0	4	0	0
Coleworts, dozen bunches	2	0	4	0		Salsafy, bundle	1	0	1	5	0
Cucumbers, dozen	2	0	5	0		Seakale, per basket	1	6	2	3	0
Endive, dozen	1	3	1	6		Scorzoneria, bundle	1	6	0		
Herbs, bunch	0	3	0	0		Shallots, per lb.	0	3	0	0	0
Leeks, bunch	0	2	0	0		Spinach, bushel	0	0	0	0	0
Lettuce, dozen	0	9	1	0		Tomatoes, per lb.	0	2	0	6	0
Mushrooms, punnet ..	0	9	1	0		Turnips, bunch	0	3	0	4	0

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	4	0	to	6	0	Roses (indoor), dozen ..	0	6	to	1	0
Azalea, dozen sprays ..	0	6	1	0		„ Tea, white, dozen ..	1	6	2	6	
Asparagus Fern, per bunch	2	0	3	0		„ Yellow, dozen ..	2	0	3	0	
Bouvardias, bunch ..	0	6	1	0		„ Safrano (English),					
Carnations, 12 blooms ..	2	0	3	0		dozen ..	2	0	3	0	
Daffodils, (dbl.), doz. bchs.	2	6	3	6		„ (French), yellow, doz.					
„ (single), doz. bchs.	3	0	4	0		blooms ..	1	6	2	0	
Eucharis, dozen ..	4	0	6	0		„ (French), Red, dozen					
Gardenias, dozen ..	3	0	4	0		blooms ..	2	0	2	6	
Geranium, scarlet, doz.						Smilax, per bunch ..	4	0	6	0	
bunches ..	6	0	9	0		Tuberose, 12 blooms ..	0	4	0	6	
Lilac (French) per bunch	5	0	6	0		Violets (English), dozen					
Lilium longiflorum, dozen	4	0	6	0		bunches ..	1	6	2	6	
Marguerites, 12 bunches ..	1	6	3	0		Violets (French), Parme,					
Maidenhair Fern, dozen						per bunch ..	2	6	3	6	
bunches ..	6	0	8	0		Violets (French), Czar, per					
Orchids, dozen blooms ..	1	6	12	0		bunch ..	2	0	4	0	
Pelargoniums, 12 bunches	6	0	9	0		Violets (French), Victoria,					
Primula (double), dozen						dozen bunches ..	2	6	4	0	
sprays ..	0	6	1	0							

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Ferns (small) per hundred	4	0	to	6	0
Aspidistra, dozen	18	0		36	0	Ficus elastica, each	1	0		7	0
Aspidistra, specimen plant	5	0		10	6	Foliage plants, var., each	2	0		10	0
Azaleas, each	3	6		4	0	Genistas, per dozen	9	0		12	0
Cinerarias, per doz.	9	0		12	0	Hyacinths, dozen	9	0		12	0
Cyclamen, dozen	9	0		12	0	Lycopodiums, dozen	3	0		4	0
Dracæna, various, dozen ..	12	0		30	0	Marguerite Daisy, dozen ..	9	0		12	0
Dracæna viridis, dozen ..	9	0		18	0	Myrtles, dozen	6	0		9	0
Erica, various, dozen	9	0		18	0	Palms, in var., each	1	0		15	0
Euonymus, var., dozen ..	6	0		18	0	„ (specimens)	21	0		63	0
Evergreens, in var., dozen	6	0		24	0	Primulas, dozen	4	0		6	0
Ferns in variety, dozen ..	4	0		18	0						



MANGOLDS.

VARIETIES of Mangolds are steadily increasing, and the choice of sorts, which once lay between the Yellow Globe and Long Red, now ranges over nearly a score of sorts enumerated by some of the great seed firms. Though this multiplicity of sorts is somewhat of a nuisance, and may not point to any material improvement in the root itself, it is undoubtedly a sign of its popularity and increasing usefulness. For general practice it is considered that Long Red answers best for deep rich loams, Yellow Globe having preference for more shallow soils. In our practice we pay no heed to this, as we have invariably had full crops of both types by the process of ridging described last week. To select one kind as worthy of preference for general cultivation we may take Sutton's Golden Tankard as excelling in bulk of crop, quality of roots, and early maturity, such points being remarkable only under really sound cultivation, and we must not be understood to recommend this safe and excellent sort to the exclusion of all others.

So important do we know early sowing to be, that we must again call particular attention to it. If, as we strongly recommend, the seeds are sown by the third week of April, the soil then retains sufficient moisture to insure quick

germination, followed by unchecked growth. Then, once get the roots established in the farmyard manure, and the young plant is practically protected against harm from drought. We have striven to make it quite clear that in Mangold culture we value farmyard manure much more for its retention of moisture than for the modicum of plant food which the plant can obtain from it.

It is to the rich store of fertility imparted to the soil by the chemical manure that we look for the promotion of rapid and robust growth. To turn this to full account let the singling of the plants be done as soon as they are large enough to handle. The distance apart is anything from 12 up to 20 inches, according to sort and soil. It is probable that more nutritious roots are obtained when they are 14 or 16 inches apart than at the greater distance. Frequently annual weeds appear so thickly around the Mangold plants, that without prompt attention to singling and hand-hoeing they would either be smothered or so much drawn up into slender growth as to be worthless.

Marvellous is the rapidity of growth after the singling and first hoeing. This is owing mainly to the quick action of the nitrate of soda, and also to the solvent power of the common salt. With full exposure to light and air the growth is also sturdy and robust. It is important when singling to know if there are to be one or more surface dressings of nitrates subsequently. If so, then the plants will require more space than they would do without it. The weeds are never suffered to become large, hoeing by horse and hand being done often enough to destroy them as they appear. There is then practically no waste of soil fertility, and by the time the spreading leafage puts a stop to hoeing there is a clean surface, and our work of cultivation is ended. We like to have this done before "haysel," every available hand being required to save the hay; but the growth of the Mangold plant is not always sufficiently advanced to admit of this, and though the haymaking is important, it must not be allowed to absorb labour to the detriment of the Mangolds. We require both roots and fodder for winter provision, and by a little judicious management both can have due attention.

Early sowing points to early maturity, and a clearance of the crop before there is any serious risk of harm to it from frost. In warm, late autumns the temptation to leave out the Mangolds on the land for weeks after they ought to be in clamp proves irresistible to many worthy farmers, who, when a sudden change comes to cold and wet, find themselves in difficulties which, by the exercise of a little decision and prudence, might have been avoided. Let our aim be, then, to obtain a big crop of small roots, which, weight for weight, are altogether more useful and more nutritious than large roots. To get them off the land early in the autumn before there is much risk of severe frost, to store them so well for winter and spring use as to feel confident that frost of exceptional severity can never reach them, and if clamps are made to place them close by a hard road, or where the roots are to be used.

WORK ON THE HOME FARM.

Is it a sign and token of inferior workmanship, of deterioration in skill of farm labourers of the present day, that so many ricks have been stripped of thatch by equinoctial gales? Never before have we seen such damage of this sort from wind, and we are convinced that very much of the damage might have been avoided had the workmanship been less superficial in character. The custom of using short wooden pins and rope yarn in rick-thatching is decidedly wrong; we require much longer pins, and the thatch so secured that, though high wind may ruffle, it cannot blow it off. Let this and kindred matters be taken into schemes for technical education, and let certificates be granted for the best workmanship, and thus form an incentive to workmen, such as wages never can do.

Recent alterations at a homestead, which we were asked to inspect and report on, gave us something to commend and something to blame. The dairy was excellent, the fittings being simple and efficient, the ventilation good, the walls faced with white glazed tiles, the whey and separated milk passed by a pipe to a cistern near the piggery, and water laid on. The cheese room was equally good, being com-

modious, having ample shelving, proper ventilators, and a stove for ripening cheese. The faults were in the outbuildings, where, with plenty of space roofed in, no provision had been made for calf rearing, there was no poultry house, and no cart hovel. All these things are indispensable, and yet had been overlooked, simply because the repairs had been entrusted to a builder who knew nothing of farming.

Let poultry and pigs have the special attention which they require in the spring. In both of these important matters we can venture on a surplus of stock over possible requirements, so as to be able to select the best of each, and to discard for sale all that are not wanted. The fact of so much lean poultry being imported from Ireland for fattening should act as an incentive to every farmer to raise very considerable numbers of chickens as an article of farm produce, for which there is always a profitable sale, and as an outlet for some of the cheap corn.

EXPERIMENTAL FARMS.

AN interesting report has just been published by the Federal Government of Canada, giving an exhaustive description of the various experimental farms which have recently been established within this vast territory. The primary object of this movement is the improvement of agricultural methods and the education of immigrating farmers in the proper equipments and the instruments necessary for the cultivation of the land.

It appears that the central experimental farm is situated near Ottawa, comprising over 500 acres of land and a complete outfit of buildings and the necessary machinery. The buildings are beautifully fitted for cattle, horses, pigs, and poultry, and all of these are well stocked. There is also a dairy, equipped with the modern appliances for carrying on experimental work; and a seed testing and propagating house, as well as a conservatory. In addition to this central station there are eleven experimental farms situated in different parts of Canada, and these carry on experiments in agriculture, horticulture, and arboriculture with much profit.

The Government has arranged that these farms should be so situated as to render them as helpful as possible to the most thickly populated districts, and in their equipments and general methods they resemble closely the central station. The staff of workers at the central experimental farm includes a director, an agriculturist, a horticulturist, a botanist, an entomologist, and a chemist. There is also a poultry manager, a "foreman of forestry," and several assistants to assist the members of the staff. The work is varied in nature, and has to do with practically everything which relates to farming in Canada. Experiments are also carried on to determine the vitality and purity of various agricultural seeds, and to investigate the nature of the diseases of plants and trees, and the cure for the ravages of insects. Various kinds of fertilisers are tested to determine their comparative value with different soils and crops.

The study of the care of animals is also a very important interest, and the value of different breeds of stock, and their adaptability to various climates and other conditions, are carefully investigated. These stations also examine the scientific and economic sides of butter and cheese making. Experiments are also carried on to determine the best methods of planting and pruning trees for fruit raising or for shelter or timber.—("Echo.")

OUR LETTER BOX.

Pig Management (Novice).—"Live Stock," price 2s. 6d., Vinton and Co., 9, New Bridge Street, London, E.C., contains the information you require on the management of pigs.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1895.		Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
April.			Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday	7	29.366	48.7	44.2	N.	42.1	49.3	42.4	70.3	38.8	0.040
Monday	8	29.818	44.9	41.3	N.W.	41.9	57.1	35.0	87.7	29.9	—
Tuesday	9	29.938	52.9	50.1	S.W.	43.3	63.9	45.6	103.0	43.1	—
Wednesday	10	30.042	52.2	49.6	S.W.	45.1	62.1	46.5	98.2	42.0	—
Thursday	11	30.319	51.9	46.8	N.W.	45.1	62.3	57.3	106.6	31.1	—
Friday	12	30.392	45.2	42.0	N.	46.0	57.4	37.5	102.8	33.5	—
Saturday	13	30.276	49.7	40.4	N.E.	45.8	56.1	33.8	97.6	28.0	—
		30.022	49.4	44.9		44.2	58.3	39.7	95.6	35.2	0.040

REMARKS.

- 7th.—Showers in the small hours, and one or two smart showers in the morning; frequent sunshine in the afternoon; bright evening, a little misty.
 8th.—Generally overcast in the morning; sunny afternoon.
 9th.—Sunny and mild throughout.
 10th.—Overcast, with gleams of sun in the morning; generally bright in the afternoon.
 11th.—A perfect spring day.
 12th.—Fine and pleasant, but frequently cloudy.
 13th.—Generally fine.

A fine week, and getting warmer.—G. J. SYMONS.

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ALEX. DICKSON & SONS

Have pleasure in announcing for distribution in May a further series of their

CELEBRATED PEDIGREE ROSES,
HELEN KELLER (H.P.), Rosy Cerise, superb .. 10/6 each
MAVOURNEEN (H.P.), Silvery Flesh, first rate 10/6 ..
MARJORIE (H.T.), White, Pink centre, very pretty 7/6 ..

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BELLE SIEBRECHT (Mrs. W. J. Grant).

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the most valuable introduction of the past ten years. This superb variety has gained the highest awards wherever exhibited in Great Britain and America, chief among these being the National Rose Society's Gold Medal.

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Journal of Horticulture.

THURSDAY, APRIL 25, 1895.

BRITISH CENTRAL AFRICA:
CLIMATE AND PRODUCTIONS.

THE Shire Highlands is that part of British Central Africa which lies a little to the east, but within the northern basin of the Zambesi River. For the last three years it has been under the administration of the British Government. The Highlands, taken as a whole and comparing it with the other great divisions of Africa, is fairly healthy for Europeans if they take the greatest care of themselves. Here, practically, we have no scarlet, typhoid, enteric, or yellow fevers, no cholera, nor any of the diseases which cause so much mortality in other countries, but to a very great extent this immunity from disease is counterbalanced by the serious mortality resulting from African malarial fevers, the most deadly form of which is hæmaturic fever. Statistics are not yet to hand, but I believe I am correct in saying that the Europeans at present in the country number over 300, a large majority of them being settled around Blantyre. It is noteworthy to mention that nearly 200 of them hail from the land of Burns and Scott.

The altitude of the Shire Highlands' plateaux, roughly speaking, is from 1500 to nearly 3500 feet above the sea level. From these elevations again rise some magnificent mountain masses, the chief amongst them being Mount Mlanje, which has only recently been ascended to the summit, and found to be 9680 feet in height. All round Blantyre are some very picturesque mountains, notably Mount Ndirende 4500, and Mount Gochi 5000 feet, while near the Blantyre the flat-topped mountain of Chiradzulo rises to a height of 5500 feet above the sea level.

Needless to remark, the presence of these hills and mountains influences the climate to a marked degree. The Shire Highlands is both well watered and wooded. Large forest trees are conspicuous by their absence, except along the banks of streams, and hidden away in the fertile valleys, where are to be found some handsome specimens, comprising Khaya senegalensis, Erythrophleum guineensis, Parkia filicordia, and several others.

The rainy season generally commences in November, and lasts until April, and with the

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advent of the rains usually sets in the "seedy season," when native and European alike may expect to be down with that "scourge of the country," malaria. The average yearly rainfall, recorded at Blantyre and surrounding district, is from 50 to 55 inches, and the average temperature about 55° Fahr. The highest reading yet recorded by the writer (at the hill station) was 96° and the lowest 37° in the shade.

Like our friends in South Africa, we have for months past been subject to the plague of locusts, which have done an enormous amount of damage, the first planted crops of the natives having been devoured. The locust is a very dainty feeder; he disdains the hard tough grass of the bush, but has a decided preference to the sweet tops of the green Maize, and he does not object to the fresh green shoots of the Coffee plant, especially the young seedling Coffee. He seems to take a special delight in eating them through, and leaving them lying on the ground. I have myself lost, on an average, this planting season nearly 20 per cent. of young seedlings, and several other planters have fared much worse.

It would be amusing, if it were not so pathetic, to watch the native efforts in frightening the locusts from their gardens. They are constantly on the watch, and all day long is heard the noise of shouting and beating on empty tins and pots in their efforts to drive away the pest; but notwithstanding such constant exertions, their Maize crop for the year is nil, and from reports which reach us from other districts it is an entire failure. However, during the past month the locusts around here seem to have entirely disappeared. No doubt the everyday constant rains we have had has either killed or driven them away, and the natives are once more—in some cases for the fourth time—sowing their gardens. Let us hope that their efforts this time will be successful, for their own sakes, as the occurrence of a famine in the country would not only strike a very severe blow at the native labour supply, but would be a fatal thing for the poor native, as he has yet to learn the meaning of "saving up for a rainy day."

Perhaps a few words regarding the progress that is being made in Central Africa may be of interest. It is noteworthy to remark, and we have every reason to hope, that in the matter of a few months Blantyre will be in direct telegraphic communication with London *via* the Cape. It is even now possible—I am told it has been already done—to transmit telegrams from Blantyre to Cape Town and thence on to London. The Blantyre section of the line has been completed, and extends for some distance beyond the Zambesi; the South African section reaching to near Mount Darwin, the gap between the Zambesi and Mount Darwin being covered by runners. The Chief Constructor and his men may possibly reach Blantyre about the month of July, when they will continue the construction of the line from that point on to Lake Nyasa, and no doubt if we only give them time they will yet reach to Cairo. We also hear whispers of a railway; but up to the present it has only reached the dignity of a whisper. However, we should all welcome it. Several railway schemes have been in the field, but Messrs. Sharrer's (the great trading and planting concern) seems to be the only one able to hold its own. Very possibly some day we shall all be agreeably surprised by tidings of his success bursting on us.

It is very satisfactory to be able to report that prices realised on the sales of the past year's Coffee—from this part—have been very favourable. From price lists just to hand from London brokers, we note that they range from 95s. to 106s. per cwt., while the crop at present on the trees is a very heavy one, and the export for this year should more than double that of 1894. It is interesting to note that the export of Coffee has risen from little over 5 tons in 1889 to 74 tons in 1894. The soil and climate of the Shire Highlands are admirably adapted for the cultivation of Coffee. It seems to have found in these uplands just exactly what it requires—a sufficient rain supply, a climate suited to its growth, and an enormous extent of virgin forest land. We have no disease here, the dreaded Coffee leaf fungus, *Hemileia vastatrix*, has not yet put

in appearance, and needless to remark, every precaution is taken to keep it out of the country. Long may it be conspicuous by its absence.

The Rubber Vine, *Landolphia*, of which there are at least four distinct kinds, is found growing in the valleys and along the river banks. It has very slender stems and glossy evergreen leaves. Very little is done by the natives in collecting the Rubber, although they are well aware that a good price for it is always obtainable from Europeans. I believe the total amount exported last year did not exceed 600 lbs. The Rubber trade could be largely increased and be made very remunerative. A very much brisker trade is done in oilseeds (a kind of *Sesamum*, allied to the family *Pedaliaceæ*) and *Strophanthus*. Several hundred pounds worth were exported last year, but for the most part the trade in these articles is confined to the lower river. Of *Strophanthus* there are three varieties found growing in the south portion of the Shire Highlands.

In the woods are to be found many native fruits, but not one of them, as far as I have seen, is worth the trouble to pick from the tree. However, at higher altitudes is to be found the Bramble, the fruit of which is just as good as the home Blackberry. The Pine Apple, which has been introduced from the coast, is found in nearly every native village, and grows to great advantage. It is called by the natives its proper name, *Ananas*. The Banana also forms a picturesque feature in every garden. Strange to say the natives do not seem to care for the fruit, they prefer rather to sell than eat it.

We have tried many experiments with the Grape Vine, but up to the present our efforts have not been crowned with success; in fact, one is almost safe in saying its cultivation in the Shire Highlands is an utter failure. Peaches grow and fruit very well, as has already been proved, both in the mission garden at Blantyre and also at Mandala, and I have no hesitation in saying, based on the success of the Peach, that all other stone fruits, Plums, Apricots, and others, would do equally well if they were introduced. Tobacco one finds growing around every native hut, for, bear in mind, the native is a confirmed snuffer; women and men, and even very young children, all take their "bit pinch," and seem to enjoy it too. Guavas, Figs, Loquats, and the Cape Gooseberry are all distinct successes, whilst the English Potato may be said to have found a new and congenial home in Central Africa.

In travelling through the country, especially just previous to the rains, what strikes one most (especially if he be of a botanical turn of mind) is the immense variety of beautiful wild flowers, and ground and tree Orchids. Some peeping out from the roots of trees, others hanging down from the stems; whilst in the sheltered fissures of the rocks are to be seen graceful masses of Maidenhair Ferns. Clothing the mountain side there appears to be flowers in bloom all the year round, while in the valleys grow majestic Tree Ferns, bearing their fronds on stems 10 to 30 feet in height. Regarding tree Orchids I only know of two varieties, one a *Dendrobium*, the other a *Vanda*, that are really worthy of cultivation. At present I have growing in my verandah a *Vanda*, which, when in flower, was the admiration of all who saw it. It had no less than sixteen spikes of bloom, with from ten to twelve flowers—milk white in colour, and each 2 inches across—on each spike. In the evenings it emitted a most pleasing scent.

It would be very interesting, botanically, to know the number and names of species of wild flowers growing in the Shire Highlands. Wild flowers, did I say? Why there are very many far superior in many ways to numbers which are tended with such care and attention in greenhouses at home. Mr. John Buchanan, F.L.S., has done much in collecting specimens, which from time to time have been forwarded for classification to Kew Gardens. Nearly 2000 distinct species, "including all kinds," have been already sent to Kew. Their botanical names could be given, but a bald enumeration of the same would, I fear, prove somewhat uninteresting, and would take up too much of the valuable space

of the *Journal*; and I have not the faintest doubt would, from the compositors, bring down on our heads a few "anathemas," which we can very well do without.—G. A., *Blantyre, Brit. Central Africa, March 8th, 1895.*



BRASSIA LAWRENCEANA.

THE plant figured at page 275 under the above name, and subsequently referred to at pages 287 and 331, is unquestionably *Brassia brachiata*, *Lindl.*, as proved by a flower sent by Mr. Chapman. I immediately saw that the figure did not represent *B. Lawrenceana*, *Lindl.*, which is cultivated in various collections under its correct name, for I have several times seen it during the last few years. How the error came to pass the Orchid Committee I cannot imagine. How distinct the two plants are may be seen by comparing the two plates, "*Botanical Register*," xxvii., t. 18 (*B. Lawrenceana*), and xxxiii., t. 29 (*B. brachiata*).—R. A. ROLFE, *Kew.*

LYCASTE ROSSIANA.

THIS is an Orchid which from its distinctiveness and its beauty should be grown far more extensively. I saw a plant of it recently in one of Messrs. J. Veitch & Sons' Orchid houses at Chelsea, and was much taken with its charming appearance. The flowers are of medium size, the sepals being greenish yellow, petals bright clear yellow, and a lip of the same colour with a rich crimson band crossing the throat. *L. Rossiana* first flowered with Mr. H. J. Ross at Florence, in whose honour it was named.—H.

MONOGRAPH OF ODONTOGLOSSUM CRISPUM.

THIS species having become eminently the queen of Orchids, it is now high time that a monograph should be devoted to it and its correctly named varieties, that we may know where we are amongst them and the many grand new kinds that bloom out of the importations.

With this object in view I have decided to compile from all sources the needed matter, and to figure the fine varieties already known. If your readers will all kindly send me their good *Odontoglossums* (for in time I hope to treat the genus to the same thing) and photographs, for some may not like to send their treasured spikes, I shall have the support I need. Then comes the financial aspect. The more subscribers the cheaper it will be. The announcement will appear in due time.—DE B. CRAWSHAY, *Rosefield, Sevenoaks.*

ORCHIDS AT WARWICK.

DURING a recent visit to the Rev. Mr. Way's interesting garden at the King's School, Warwick, I was much struck with a particularly fine group of Orchids. *Dendrobium Wardianum* was in strong force, every plant being vigorous, healthy, and splendidly flowered. A great feature in the collection was the wonderful variation to be found in the markings of the flowers in various plants, the lip spots being in many instances extremely rich in colour, varying from a crimson-magenta to true crimson. The plants were not large, but displayed something better than mere size—viz., the unmistakeable stamp of high culture.

Cattleya citrina, *Odontoglossum Rossi majus*, and *O. crispum* were also represented by many well-grown plants in full beauty. The whole collection, whether in or out of flower, reflects great credit on Mr. Geo. Burrows, Mr. Way's head gardener.

Attractive as Orchids are at all times, it is only when skilfully grown and tastefully arranged, as in the present instance, that the singular beauty of their quaint forms elicits the fullest admiration.—W.

[A photograph of the Orchids referred to shows that they are excellently grown by Mr. Burrows.]

DENDROBIUM PULCHELLUM.

THIS singular but very attractive little Orchid seems to be by no means popular in collections, orchidists apparently not caring much for these small-growing species. It is, nevertheless, extremely pretty and very free flowering, the blooms being large

in comparison with the growth, which is of a rambling nature, the tiny cylindrical pseudo-bulbs or stems growing in all directions when in congenial quarters.

The plant is deciduous, and the flowers are produced from the nodes in early spring after the leaves have fallen. The sepals and petals are rosy lilac, the lip similar in colour, rounded in front with a deep yellow blotch in the centre, margined with white, and elegantly fringed with purple. *D. pulchellum* does not thrive in a pot in the ordinary way, as it produces its roots all up the stems, and needs something for these to cling to as they are evolved.

A cork block dressed with sphagnum, or wide shallow baskets with the same material, are the best receptacles for the plants, and they must be grown in a warm moist house during the summer. When the growth is complete remove the plants to a light sunny place in a cooler house, as although a small growing kind it requires a good season of rest, or but few flowers will be produced.



FIG. 60.—LÆLIO-CATTELEYA EPICASTA. (See page 364.)

During the resting period no water will be required unless the plants shrivel. If this occurs give them a thorough soaking, and give no more until perfectly dry. They should have a little new material every season after flowering, and as the bulbs are spent they should be cut out to make room for the new ones, pegging these down with small wire pegs. This species is also known as *D. Loddigesii*, and is a native of China and Northern India, whence it was introduced in 1833.—H. R. R.

DENDROBIUM NOBILE IN BASKETS.

THIS is one of the best Orchids for the grower with limited accommodation. No more economical way of cultivating this *Dendrobium* is known than growing it in baskets. In a well-filled plant stove, or even in a vinery, space can generally be found for suspending a basket or two from the rafters under the roof. In such a position they obtain a sufficiency of light and abundant moisture supplies. Now is a good time to set about making up new baskets or renovating old. As the plants pass out of flower new growth commences to push, and this is a good time for increasing the stock. Every bit with a root attached will grow if

reasonable treatment is afforded afterwards. Baskets are easily made, teak wood being the best, but it is advisable to purchase them ready made from dealers. The size of the baskets is a matter of taste, and must depend to a large extent on their proposed occupants. I have seen fine blooms produced on plants growing in baskets but 6 inches square. The baskets should be lined with moss to prevent the soil falling through, and for appearance sake.

A suitable compost for this *Dendrobium* is composed of equal parts of fibrous peat and loam. Charcoal, broken in Walnut-sized lumps, help to retain porosity. A handful of finely ground bones stimulates the growth, increasing its luxuriance and length of stem, accompanied by a larger number of blossoms. The tallest and strongest plants should be placed in the middle of the basket, finishing off in one corner, surfacing the whole with moss. A thorough soaking with tepid water should be given to settle the soil about the roots. For a week or so all the moisture required can be given by the aid of the syringe, this being brought into use two or three times daily.

When in full growth abundant supplies of water should be given, and occasionally doses of liquid manure will be an advantage, at all times using it in a tepid condition.—B. W.

SUNSHINE AND SHADE.

THE past year of 1894 with its predecessor of 1893, whilst affording practical examples of sunshine and shade, do not for the purposes of this subject yield data so strongly bearing on it as the ordinary type of weather in the British Isles, which may be termed mixed. But little if any trouble in the matter of shading our plant houses occurred during that glorious and prolonged Italian summer of 1893. The maximum amount of shading which was then required to veil our plants from the solar rays, entailed but the minimum amount of labour in the performance. Indeed, were similar seasons the rule instead of the exception, this subject need hardly have been broached. The same, perhaps, though in a less degree, with the sunless summer of more recent date; although, in this case, anxiety ensued in watching for those rays, which long delayed bringing additional danger to delicate subjects under glass.

We are not, however, ruled by exceptions. The ordinary course is looked for, and for such must preparations be made. April, the month of smiles and tears, sees all the paraphernalia of blinds and rollers, pullies and cords, in active running for the season. Personal experience and observation of things past and present lead to the inference that there are but few places in which this important means to an end has attained to perfection. Many places there are, certainly, where the subject is indeed a shady one. In some large gardening establishments a crop of trouble is annually raised by this means. Neither time nor place need be particularised here, for what is common in one is common to many, and those who have joined in a general stampede when some passing cloud peremptorily ordered the bothy hands to quit their meals, know how welcome was the perfectly fine day or the thoroughly wet one.

I have some lively recollections of a comrade on a lofty house savagely ripping off the caudal appendages of a new Glengarry bonnet as the breeze fluttered them in his eyes whilst trying to free the offending blind. Such experiences are of the long ago; yet with all the evident marks of progress in horticulture, things pertaining to this subject appear to have made but slight advance. Warped rollers, kinking cords, sticking pullies, and the tattered and torn stage of a blind's life are still as much to the front as they are in the background of bothy life. One need not plead the cause of our embryo gardeners and fail to recognise the bearing such matters have on those in authority over them. In those well conducted establishments where all but martial law prevails, any portion of the machinery of working when not running smoothly affects the whole.

Horticultural builders, many of whom by their practical knowledge of our requirements give such results in glazing, heating, and ventilation as to leave nothing on that head to be desired, have not, I think, given to this question the consideration it deserves. There are good all-round reasons why it should receive that attention, and be thought as necessary by them as it is known to be by us for the perfection of plant culture. In many instances proper fixtures for shading should be made a part and parcel of the structure, thus avoiding temporary makeshifts too often seen. Indeed, in some cases where this matter has been altogether lost sight of in the original design, difficulties which have to be met are never entirely overcome. There is, I think, sufficient scope in this subject to engage the attention of a specialist.

Equally important is the material for the blinds and the machinery for making them available with the least possible

amount of friction, figurative or literal. Among the various materials used for the purpose, I would ask, Have manufacturers given us the best possible to have, and of the highest possible durability? If it is allowed that in some or any of the shadings to be had, this has been attained to—which is a matter for doubt—I would again ask whether the chemist cannot assist with some solution which will as a preservative yet add to their lasting powers. As there yet remains to be produced a special cord—horticultural cord—to match the good qualities we look for in the shading material, probably the best thing yet obtainable is patent sashline, and for ordinary purposes No. 5 is suitable.

Difficulty is often encountered in the pullies, by their not being adapted to the angle of a roof, thus wearing out the cords by friction and causing frequent blocks. Those who are conversant with the subject cannot fail to notice the weak points in the apparatus in ordinary use, one of which is to be found in the rollers with the method of attaching the blinds to them. In the present day, when steel is in various instances replacing wood, tubular steel rollers appear to me to commend themselves for the purpose, nor should there be any difficulty in attaching the material to them. Anything other than wood may suggest breakage of the glass, yet there should be considerably less risk than with a warped, wobbling wooden roller on which the blind is seldom rolled up as compact as it should be.

Although we require the best weather-resisting material which fully answers the purpose of a perfect shade without unduly darkening the interior, there is no reason why this should not have the protection of a coping when not in use; that is, where the style of building and method of ventilation admits of it being fixed. Truly this is nothing new, for as a junior—some thirty years since—it was my duty to run the blinds up snugly under the coping, where during the winter season they were available, and of great service on an exceptionally severe night.

Of the manifold methods employed in shading plant houses details need not be entered on here. If there are any systems unknown to me affording a happier experience than mine has been with this subject, it would, I venture to think, be worth making known for the benefit of bothered ones. And if there is any perfect plan which would bring peace after thirty years' war with a subject more shady than sunshiny, details of such illustrated by diagrams would prove more helpful than any suggestions here advanced, for a theory undemonstrated by practice is but a mirage.—E. K., *Dublin*.

PLANT-FORMING ELEMENTS.

(Concluded from page 333.)

NITROGEN AND POTASH.

IN contradistinction to plants using the uncombined nitrogen of the air for their own or a succeeding crop's benefit, there are some that are considered to obtain nitrogen by the leaves absorbing ammonia directly from the air. This rests upon no solid foundation, and the deductions from practice are uncertain conjectures. An ammonia-charged atmosphere certainly favours the growth and health of plants in glass structures when present in small amount, and rain water fresh from the clouds accelerating plant growth more than the water long kept in tanks; also, pond water is better for plants than that from deep wells, and ammoniated water employed for syringing is more beneficial to the growth than if used ordinarily. Is not this conclusive? Do chemists find more nitrogen in such ammonia-fed plants, or is there not rather a larger appropriation of the inorganic elements than is the case without the so-called ammonia vapour? Any attempts at feeding plants with ammonia by the leaves is as uncertain as dangerous, for any excess—more than is contained in ordinary atmospheric air during moist weather—has a prejudicial effect upon vegetation in variable measure. That this moist atmosphere, with its ammonia and nitric acid, favours plant growth is manifested on every hand, and the much larger amounts of atmospheric moisture and minute quantities of ammonia arising from decaying substances in glass structures accounts for plants under artificial treatment surpassing in vigour those grown under natural conditions. Thus plants under glass have the best natural circumstances accorded to them without the disadvantages, and they flourish correspondingly by the uniformity of the moist growing atmosphere.

It is, however, through the roots that plants chiefly take up ammonia compounds, and the main source of the nitrogen obtained by vegetation is from the soil, being taken up by the roots of plants in the form of nitrates. A nitrate is a salt formed by the chemical union of nitric acid with a metal, such as potassium or sodium, and by the process of nitrification ammonium compounds and organic substances in the soil are converted into nitrates, which are the most available form of nitrogen for taking up by the roots

of plants. Both ammonia compounds and nitrates readily dissolve in water; the first are largely retained by the soil, but the nitrates are liable to be carried away and lost in the drainage waters. Even nitrogen itself is lost to the soil by the decay of organic matter, the nitrogen escaping in the free state into the atmosphere, but the amount is small in most cases; yet with a large percentage of lime in the soil there is a great waste of nitrogen from the use of ammoniacal manures, as the ammonia volatilises rapidly into the air, and, even in glass structures, is practically lost, for to deepen the colour of foliage of plants and promote the growth of their stems, leaves, and useful products, it must be got into the living tissues and active cells, where only it can profit in combination with the inorganic elements, and without this nitrogen there can be no economic utilisation of potash.

Potassium is a bluish white metal, first obtained by Sir H. Davy in 1807. Salts of potassium, however, only concern cultivators, unless it be that they may know the term potash in analyses applies to the potassium compounds as present in the form of potassium oxide. The potash of plant-ash and fertilisers is generally in the form of carbonate, sulphate, or chloride, compounds readily soluble in water, and only the amount which is available is considered in analyses.

Potash compounds or salts exist in the ocean, and silicates of potassium occur almost everywhere in the earth's crust, their disintegration being the direct or indirect source of the soluble potassium salts found in all fertile soils. Clay soils usually contain an abundance of potash combined with silica and alumina, but only weathering or cultivation renders such stores available as food for plants. Burning clay does this more effectively than the action of air, water, and frost. Such earth is much prized by horticulturists for dressing land and mixing with composts for fruit trees or plants in pots or borders. The burning releases the potash locked up in the silica and alumina, while the staple is changed from a compact impervious mass into an open and permeable medium. Liming and good culture also assists in releasing and transforming the treasures of potash in clay soils; indeed, these operations are essential for rendering the stores of potash available as plant food:

Potash is always present in the ash that remains when dried plants are burned. New stems and twigs of plants, such as hedge trimmings, prunings of fruit trees, leaves, and stems of herbaceous plants are, as a rule, richest in potash. A ton of new stems and twigs contains about 80 lbs.; leguminous plants, the straw of Peas or Beans, 40 lbs.; and of hay or cereal straw 35 lbs. of potash. Such material is therefore well worth saving either for the compost heap or burning. Burning destroys the organic matter, hence the finer parts should be reserved for compost, and the rougher only burned, then the two mixed together form an admirable dressing for land, especially grass or lawns, and light soils, which usually stand more in need of both humus and potash than heavy soils. There is little danger of loss of potash in drainage waters, as moist soils absorb potash from its solutions and convert it into insoluble forms, thus storing it away for future use.

Wood ashes are one of the chief sources of commercial potash, and the product is called pearlash, an impure carbonate, with the formula, when normal, K_2CO_3 . It is largely used in commerce, but chiefly in gardens for destroying scale insects on fruit trees. In addition to the carbonate of potash wood ashes contain carbonate and phosphate of lime and magnesia, all essential plant foods. A bushel of wood ashes of the best quality contains about 4 lbs. of potash and 1 lb. of phosphoric acid. They are valuable as manure for light soils, as solutions of the alkalies make the soil more plastic and adhesive than pure water. Wood ashes are singularly effective on leguminous crops, and as top-dressings for grass land and lawns, encourage the growth of Clover and best grasses, destroy moss and worthless vegetation. With the special object of encouraging leguminous plants one-fourth of gypsum should be added to the wood ashes. Half a bushel of wood ashes per rod is an excellent dressing for Wheat, Rye, or Oats, also for Strawberries and Onions, applying in the autumn or early in the spring, harrowing or pointing in lightly. A peck of wood ashes per rod in the early spring is usually sufficient for lawns. If very mossy use double or even treble the amount in the autumn, also employ the last-named quantities on grass land in the autumn or early in the spring or after haytime. For Cabbage, Cauliflower, and all Brassicas half to one bushel per rod may be used with great advantage early in the spring, harrowing or pointing in, or apply at the time of planting. Composts for Cucumbers, Melons, Strawberries in pots, and Tomatoes may have a pint of wood ashes added to each bushel of soil, or that quantity may be employed for top-dressing each plant of Cucumber, Melon, or Tomato.

Wood ashes are not commandable everywhere, hence chemical mixtures have been substituted, such as calcined oyster-shells,

14 lbs.; bonemeal, 7 lbs.; kainit, $3\frac{1}{2}$ lbs.; mixed, and used in the autumn or early in the spring, from half to full quantity of mixture per rod. Prof. S. W. Johnson suggests a mixture of fresh burned shell lime, 30 lbs.; bonemeal, 10 lbs.; kainit, 8 lbs.; using 10 lbs. of the mixture per rod in the autumn or early in the spring.

Kainit is the most frequently used of mineral salts, containing potash, and is found in vast deposits near Stassfurt, in Northern Germany. It is a mixture of the chlorides and sulphates of potassium, sodium, and magnesium, and a good sample contains 12 to 14 per cent. of potash. Kainit is a good fertiliser for Cabbage and Brassica crops generally, cereals; leguminous—Beans, Clover, Peas, Potatoes, and other root crops. A minimum dressing is 2 lbs., and a maximum 5 lbs. per rod, the mean $3\frac{1}{2}$ lbs. being a full one for most horticultural crops, and half for agricultural, or $2\frac{1}{2}$ to 5 cwt. per acre. Instead of this better results are had from equal portions of superphosphate and kainit, and using $3\frac{1}{2}$ lbs. per rod, 5 cwt. per acre in the autumn or early in the spring for fruit trees, not forgetting that nitrogen giveth the increase, or full value of the phosphatic and potassic elements, therefore employ $1\frac{3}{4}$ lb. of nitrate of soda when growth fairly commences in the bushes or trees in the spring. Remember also that kainit and all potash salts can only profit when in full conjunction with phosphatic and nitrogenous manures.

Carnallite, kieserite, krugite, and sylvanite are names of German potash salts, similar in composition to kainit, but as a rule inferior, being hardly safe to use for horticultural purposes, for the chlorides of the substances are positively injurious to certain useful crops, carnallite being a double chloride of potassium and magnesia. But the chloride is mollified by nitrogenous matter; therefore carnallite may be usefully employed on peaty soils.

Sulphate of potash is also chiefly obtained from the Stassfurt mines, and the commercial article contains from 28 to 35 per cent. of potash, while the pure sulphate contains 50 per cent. Sulphate of potash benefits leguminous crops, also those of roots, as the chlorides of the other potash salts sometimes injure these crops to a certain extent. It is considered a good manure for plants requiring potash, such as Vines and fruit trees generally, also Beets and Potatoes, from 1 to 2 lbs. being used per rod, but the sulphates of potash are less effective in promoting growth than nitrate, for the leaves of plants to which it is applied become filled with starch grains, and instead of being transferred to where this substance is to be stored or made use of they remain in the leaf tissue, causing it to become fleshy and sickly looking, but with nitrogenous matter in corresponding proportion the transference goes on in due course and with mutual benefit. Sulphate of potash should be supplied in the autumn or early in the spring, and when the plant starts into growth afford nitrogenous matter so as to derive full benefit from the potash.

Chloride or muriate of potash is the richest and most soluble of all the German potash salts, containing about 50 per cent. of actual potash. Used alone it is apt to injure certain plants by the deleterious nature of the chloride on plants in active growth, which, however, is counteracted by admixture with phosphatic and nitrogenous substances, as is the case in the commercial fertilisers. If applied alone it should be in the autumn or early in the spring, and phosphoric acid and nitrogen being present in proper form and due amounts, it will give a good account of itself, with decided profit to the cultivator, on almost all crops. From 1 lb. to 2 lbs. per rod is a suitable dressing, always keeping it from growing foliage or even tender young roots. It is well adapted for fruit trees in mixture with superphosphate and nitrate of soda, say mineral superphosphate seven parts, dissolved bone four parts, muriate of potash six parts, nitrate of soda three parts, crushed fine, mixed, and applied just before growth commences, and afterwards at intervals of four to six weeks up to the fruit changing colour for ripening, using 4 ozs. per square yard at the first dressing, and 2 ozs. at subsequent, the mixture being always best given in light mulching, never more than an inch thick of short, decayed, lumpy manure, otherwise there is some danger of injuring tender surface roots.

Fish guano is essentially a potash manure, the fish refuse being mixed with the German potash salts. A complete fish manure contains 15 per cent. of sulphate of potash, 7 per cent. of nitrogen (equal to ammonia), 10 per cent. of magnesia, and 8 to 20 per cent. of phosphates, though some kinds contain much lower per-centages of potash, nitrogen, and phosphates. From $1\frac{3}{4}$ lb. to $3\frac{1}{2}$ lbs. per rod or $2\frac{1}{2}$ to 5 cwt. per acre are full dressings, supplying early in the spring and as required during growth for subjects that depend on artificial supplies from time to time, such as plants in pots or borders of limited area.

Nitrate of potash or saltpetre is both a nitrogenous and a potassic manure, hence a valuable but a dear fertiliser. It, however, is very little use by itself, for it is not enough to supply nitrogen and potash; but phosphates also are absolutely essential

for the profitable cultivation of crops, and without due proportions of all a full measure of success cannot be attained. To render the nitrogen and potash thoroughly efficacious for plant growth and perfection of its crops, especially of fruit or seeds, also of flowers or buds for producing them, phosphates must be added and in maximum amount relatively to the other ingredients, say five parts superphosphate, three parts nitrate of potash, and one and a half part gypsum, mixed, employing 4 ozs. per square yard, always with or slightly in advance of growth in the plant, and as needed during that to sustain it and bring its crops to perfection.—G. ABBEY.

FLORAL FACTS AND FANCIES.—9.

THERE are some questions floating about in the world which people never seem to be tired of, and to which they keep on returning with new interest, such as "Who wrote Junius's letters?" or "Who was the man in the iron mask?" Another of these that reappears now and then is, "Why should the Cowslip have been thus named?" As to the Oxlip we may consider that name an afterthought, given to the scarcer species because the feminine epithet had been attached previously to the Cowslip. Cowslips grow wild, certainly, along meadows grazed by cattle, but so do many other plants that come into contact with the lips of these animals. Of course, some folk want to make out that the Anglo-Saxon "Cuzlippe" might have had another meaning entirely; but of all the suppositions relating to the cow the likeliest seems to be that the velvety petals were fancied to resemble that quadruped's under lip. There is another puzzle, the plant is also called the Paigle, Pagil, or Peggle, a name apparently not limited to this species, but sometimes given to other native flowers. A leading philologist states its origin is most uncertain, though, as applied to the Cowslip, it may allude to a belief that a liquor made from the flowers cured palsy. Even yet it is thought the plant has remedial powers in chest diseases. One of the old notions concerning it is that the nightingale haunts places where it grows freely, and in some parts of East Kent it is oddly called the "Horse-buckle." Milton spoke of the flower as being wan and pensive, fitting for a funeral wreath; but more usually it is considered a symbol of "winning grace." Gibbs, one of the Old Brompton florists, produced a large number of variations about sixty years ago, which were deemed curious, especially the hose-in-hose form. To that plant which some have styled the American Cowslip has been assigned the character of "divine beauty," probably from its having been linked by Linnæus with gods and goddesses. He gave it the name of Dodecatheon Meadia, in honour of one of England's greatest physicians, also after a classical plant, now unrecognisable, upon which, it was said, each of the twelve celestial deities conferred some virtue. It was not inappropriate to this American species, for it bears upon the stem a cluster of reddish or lilac flowers of that number.

Some misapprehension has arisen from our common name of the allied Primrose, because it has been thought our ancestors called this a Rose. Really it was *Primerolle*, in reference to the early appearance of the flower along sheltered spots, so it came to be a symbol of "youth," but Shakespeare uses it as a figure for gaiety and pleasantness (the "Primrose path"). After all, the two meanings are not far apart. It is in one way a pity that the Primrose should have been taken as a party emblem, for this has led not only to the extensive gathering of the flower in its native haunts, but to the uprooting of the plants, so that the species has disappeared from places where it grew freely years ago. Yet, popular as the Primrose is, the repute of the spring salve made from its leaves seems to have vanished. The kindred Polyanthus, a flower which decorates so many borders in April, though it likes not the air of large towns, from its showiness became generally a symbol of "pride." Yet a crimson one is said to be significant of "mystery," and to present a lilac flower to a friend is to express "confidence" in him or her. Some early devotee of the Auricula, noticing its variations in colour and markings, called the flower a reminder of the "art of painting," but the scarlet varieties are said to suggest "avarice." When the plant first reached England people called it the Mountain Cowslip or Bear's Ear; this is, in fact, the meaning of the Latin name. The time of its greatest popularity was about 150 years ago, when it was the special favourite of flower growers amongst the artisans. Maddock, florist at Walworth in 1792, catalogued upwards of 500 varieties. The Evening Primrose claims a passing word here from the popular name it bears, though the *Oenothera* belongs to a family unconnected with the *Primulas*, but it tells us of "inconstancy," perhaps because the petals fade off rapidly, or that, in some kinds, they undergo a singular change of colour a little while after the flower has opened.

Pass we now to the *Ranunculus*, of which the above-named

Maddock, so renowned for Auriculas, remarked that we could produce, if need be, more varieties of it than of any other garden flower, though in 1628 Parkinson knew only eight double sorts, but then the plant had not long been introduced. The old gardeners were slow to discover that this *R. asiaticus* from the Levant was related to the Buttercups familiar along our English fields and lanes. From the original red type, by seedlings and division, were afterwards produced such showy and many-coloured flowers that, in floral language, the *Ranunculus* came to mean "resplendent charms." Some gardens in the old-fashioned style will yield specimens of the Aconite-leaved *Ranunculus*, or Crowfoot, grown under the name of Bachelor's Buttons. Why it is specially bacheloric we know not; also we are informed that the plant represents "lustre," possibly a compliment to the unmarried individuals of either sex. Indeed, one white variety gives us the other side, as it has been styled the "Fair Maids of France." One friend, however, tells me that he has heard a garden species of Catchfly, or *Silene*, called the Bachelor's Button too.

Amongst the cultivated Crowfoots there are several plants that have a double character. As part of the army of Buttercups in spring they tell of "cheerfulness," but as Crowfoots they remind us of "ingratitude," because under cultivation they do not improve in quality; their acrid nature is rather intensified than otherwise. One species, indeed, is actually called *R. sceleratus*! Some London gardens used to have another species, then occasionally found wild about small copses near the metropolis, grown under the name of Goldylocks, the *R. auricomus*, one innocuous member of a poisonous group. This appellation, however, has also been given to a shrub of the Composite order, a *Chrysocoma*, rare on our western coasts, and of which we have more showy species from South Africa. Another Crowfoot, the small Celandine, dear to the poets, is said to tell us of "joys to come." The name also associates its flowering season with the arrival of the Swallow from afar; but we must remember that the Greater Celandine in the Poppy family received its name for a different reason, because it was supposed the bird gave the plant to its young as a sight strengthener, and villagers have applied its thick juice to their eyes, not without risk.

In the Adonis or Pheasant's Eye we see a border flower that few recognise as a native plant. Token of "sorrowful remembrance" this, since it is linked to the classic legend of Adonis. Our own Shakespeare has told the tale again, how the weeping Queen of Love, as she lamented the death of Adonis, caused the earth to produce a plant the flowers of which resembled the blood flowing from the wounds he had received. Country folks say that the wild Anemones cannot bloom till they have been blown upon by the winds of March. They may have been called "Wind-flowers" from the fragility of the petals, or because the tails by which the fruits of some are adorned carry them rapidly through the air. The pale species of our woods suggests "sickness," the plant being regarded as an almost universal cure for the maladies of spring. A portion of it was worn round the neck, not taken by the sufferer. Under cultivation, as in exotic species, the stamens become petals, and a pretty double flower is formed, the Pasque Anemone.

A. pulsatilla was so named by Gerard because he found it flowering at Easter. The story that its juice was used to colour Easter eggs seems to be a mistake; for some reason or other it is a symbol of "unpretentiousness." The scarlet Anemone of Italy tells, they say, of one that is "forsaken," and the blue variety speaks of "hope." It is found wild, apparently, in a few places, but authorities consider it was introduced by the Dutch gardeners. Another species of the *Ranunculus* order is the showy double Pæony, the flowers of which indicate "shame," and to the garden Larkspur has been assigned the meaning of "fickleness."—J. R. S. C.

CARNATION NOTES.

I WAS sorry to see Mr. Martin R. Smith, page 287, give an account of such bad results from his experience with Carnation seedlings. I am glad to say we have been more fortunate. We have one small border of ninety-five plants, seedlings from two pods of seed saved in 1893. The seeds were sown as soon as ripe, and the young plants pricked in boxes, wintered in a cold frame, and planted out in May last year. All of them grew well, three flowering in the autumn. At the first sharp spell of frost I gave them a mulching of 3 inches of decayed leaves, with the result that we have not lost one. Now they are beginning to grow again, and I shall be anxious to see them flower.

Raising seedlings is very interesting, especially when you "cross" them yourself. As mentioned above three seedlings flowered in the autumn of last year from seeds saved from a pod of a white "self" border Carnation—a large-flowered crimson and yellow "fancy"—and the three that flowered were all purple "selfs." This, to me, seems rather curious. We have had another, to me, real curiosity. It is a seedling from a crimson self, crimson and yellow fancy. Fifteen plants

came up from the pod of seed sown in 1893, and up to now nine of them have flowered in 7-inch pots in the greenhouse.

This particular one, I thought, when expanding its flower, would have a "blind" centre. But first of all it opened one set of petals, and then from the centre of this appeared another flower, perfect in every way, forming a kind of "hose-in-hose" Carnation, the bottom part being about 4 inches in diameter, and the centre 2 inches. Another rather curious thing was one side of the "hose-in-hose" was a very deep crimson ground shaded lake, the other being buff ground shaded scarlet. Several other flowering shoots are spindling up now; is it probable that the blooms from them will be the same as the first?

We have only just commenced raising our own seedlings, and perhaps some of our "big growers" will say how far seedlings are likely to follow their parents, and if they often break away to entirely different colours. Of the above mentioned plants that have flowered two are crimson selfs, the remainder being all fancies of different shades.—JOHN ETTLE, *Glais House Gardens, Swansea Valley, S. Wales.*



WEATHER IN LONDON. — A decided improvement has taken place in the weather during the past week, and in consequence vegetation of all kinds in metropolitan districts is now growing rapidly. Bright spring-like days have for the most part prevailed, with warm sunshine interspersed by genial showers. Yesterday (Wednesday) was particularly agreeable.

— THE WEATHER IN THE NORTH.—With less sunshine than in the preceding week the weather has notwithstanding been pleasant enough for the season during that ending the 23rd. Somewhat cold easterly winds prevailed in the earlier part, but Friday and Saturday were fine and mild. Monday was drizzly, and rain fell copiously during the night and again on Monday evening. Tuesday morning was dull, with the thermometer at 53°. Vegetation has progressed rapidly during the last few days.—B. D., *S. Perthshire.*

— SHIRLEY AND DISTRICTS GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT ASSOCIATION.—A meeting was held at the Parish Rooms, Shirley, Southampton, on Monday, the 22nd inst., when the President (Mr. W. F. G. Spranger) presided over a fair attendance of the members. Mr. W. Frank Perkins gave an interesting and instructive lecture on "Seeds: Their Composition, Growth, Structure, and Germination." "Curiosities of Seed Life" was also dealt with in an instructive manner, showing how winged and hooked seeds are adapted for distribution. A large collection of seed was shown by Mr. Perkins and Messrs. Toogood & Sons in illustration, and a very curious and unknown pod of seed was contributed by Mr. W. H. Rogers, containing hundreds of flat winged seeds, each an inch square. A vote of thanks to the lecturer and the exhibitors, and a resolution to pay a visit to Kew Gardens as an outing early in July, terminated the proceedings.

— GARDENERS' ROYAL BENEVOLENT INSTITUTION—THE WOLVERHAMPTON AND STAFFORDSHIRE AUXILIARY.—It has been decided to hold a floral fair and promenade concert in the Wolverhampton Drill Hall on April 30th and May 1st. All the artists have been engaged, and many florists have promised to assist in the decorations. Exhibits are also expected from Shrewsbury, Sheffield, and other parts. The promoter, Mr. G. A. Bishop, is very anxious that gardeners and others in the county and friends outside should render all the assistance they can by sending cut flowers, buttonholes, sprays, bouquets, or any exhibits, which will be considered a gift to the Institution. Gardeners could greatly help the Floral Fair by sending, at a very small cost, boxes of cut flowers for the ladies to sell. The principal gardeners in the county will act as Stewards of the Auxiliary. A working Committee has been appointed, and the Chairman has already collected nearly £30, and anticipates, with the co-operation he hopes for, to raise treble that amount. Friends wishing to take part in the undertaking should write G. A. Bishop, Netherton Farm, Wightwick, Wolverhampton, or send flowers and other things to the Drill Hall, not later than April 30th. We are asked to commend this co-operative effort on behalf of a splendid charity to the attention of our readers, but think it will commend itself, and trust the result will be in the highest degree satisfactory.

— THE TEMPLE SHOW.—Her Royal Highness the Princess of Wales has graciously consented to attend the Society's Great Flower Show in the Inner Temple Gardens on May 21st, and the show will be open for three days.

— MR. H. SHOESMITH, who is well known as a Chrysanthemum grower, has taken a business—the Claremont Nursery, Woking, an improving town in Mid-Surrey, and the home of some ardent amateurs in horticulture. The nursery contains good ranges of glass, Mr. Shoesmith intending to turn them to the best account, and to be heard of again.

— TRUFFLES.—Of all the delicious species of the Fungus family the Truffle probably heads the list. They are found chiefly in Oak forests. Growing wholly underground they can only be found by the aid of dogs carefully trained to scent them. The dogs indicate where they are, and the hunter digs them up. There is no reason why they might not be introduced into America, says a contemporary; but it is said to be difficult to get the dogs.

— SEAKALE.—When at Dropmore recently Mr. Herrin showed me a large breadth of ground prepared and set apart for the reception of Seakale root cuttings. He mentioned that he planted some 5000 yearly, because the demand for this excellent vegetable was so great. "We can practically put it on the dinner-table every day of the winter," he said. "It is only needful to have good roots, not necessarily large ones, in abundance, and the rest is easy." A large stock of roots has been of great value to any gardener during the past winter. How much better is it to grow Seakale in this way, practically treating it an annual, than by the old, untidy method, still seen in many gardens, and which gives such poor control over the roots during the dead of winter. Those who grow on the old bed system seem now rather out of date.—D.

— THE CONSTRUCTION OF ROCKERIES.—I fear I must plead guilty to having sent an unsatisfactory diagram with my articles on the construction of rockeries for Alpines. Your very able contributor, "Saynor" (page 342), is too complimentary to me in other respects, but I confess that the diagram is not what it should have been. Unfortunately, the art of drawing is one of the many accomplishments which the lack of the natural talent prevented me acquiring. The diagram was made a little more obscure by the omission from it of the letter F, which in the key pointed to the body of soil which had not been put into terrace form. As your contributor says, the outline is not a hard and fast one, but is merely to give a general idea of how to proceed. Alpines have to be grown in our gardens under purely artificial conditions, but it is wonderful to see how soon they modify the appearance of the rockeries on which they are placed. Prune away, Mr. "Saynor!" We are all delighted to read your "Prunings," and shall all be benefited thereby. May the whetstone be always at hand, so that the edge of the knife may be sharp enough to cut out all the useless growth to the great advantage of what is left.—S. ARNOTT.

— LIVERPOOL HORTICULTURAL ASSOCIATION.—The sixth and last meeting of the session was recently held in the Free Library, William Brown Street, the Chairman being Mr. T. White. Mr. Jno. Cowan of The Vineyard, Garston, read a paper on "How the Usefulness of Horticultural Societies and Associations might be Extended." At the outset he spoke of the great advance of education, in which horticulture played a prominent part. For one exhibition held twenty years ago we had now ten or twelve, and he was in favour of having more still. To make associations more useful he advocated the foundation of properly constituted committees in popular centres, who could grant certificates or awards to new and meritorious plants and products, which would carry the same weight as those of the R.H.S. Such committees should also be able to conduct horticultural examinations. In concluding, Mr. Cowan spoke of the stereotyped way in which our exhibitions are arranged, with scarcely any departure from year to year. Mr. White agreed that exhibitions were too monotonous. Mr. R. G. Waterman in the main coincided with what Mr. Cowan had said, saying that there ought to be something done so as not to let northern gardeners, who were quite as capable as any in the kingdom, have to be always a year behind in new and rare plants. Mr. R. Pinnington said he would for the present like to see each large association in a position to send at least two of its members to London twice in the year to report on new and noteworthy plants and other products. Mr. Stoney, Mr. Massey, and Mr. Foster also added interesting remarks. A hearty vote of thanks was proposed to Mr. Cowan for his admirable paper.—R. P. R.

— WE are informed that the Reigate Rose Show, in connection with the Cottage Garden Show, is fixed for July 10th.

— GARDENING APPOINTMENT.—Mr. H. R. Richards, lately head gardener to Colonel H. Trafford Rawson at Roche Court, Salisbury, has been appointed head gardener to the same gentleman at Coldton Hall, Bury St. Edmunds, Suffolk.

— WATERLOW PARK.—Under the direction of Mr. J. Pallett, the Superintendent, many improvements have recently been carried out in Waterlow Park, Highgate. All the paths have been remade, and large patches of the lawns returfed. The flower borders are stocked with Hyacinths, Daffodils, and Polyanthus, and there is every prospect that the herbaceous plants, which made such a splendid show last year, will again be a credit to the place.

— PRIMROSES AT COVENT GARDEN.—On Primrose Day Covent Garden Market presented an unusually busy appearance by reason of the enormous quantities of Primroses which had been imported into the metropolis. The majority of these were in root form and not obtained before the previous day in order that their beauty might be longer retained. It is stated that the plants were not so numerous as last year, and that buyers had some difficulty in procuring large supplies.

— GOLD-LACED POLYANTHUSES.—I saw a number of seedlings raised from the late Barlow strain growing the other day at Farnham Royal, and assisted in the selection and marking of many of the best. Mr. W. James, who inherits his father's excellent judgment, is taking great pains to preserve the strain pure. All who grow this section of Polyanthus know how readily they retrograde if other than the best forms are retained. Now is the time to sow Polyanthus seeds to secure good plants to bloom next year, and if some of special excellence result then it may be with a few wisest to lift carefully and establish in pots, standing them in a frame or cool greenhouse for seeding, or to keep for division, and thus increase those worthy of that course.—A. D.

— WAKEFIELD PAXTON SOCIETY.—At the meeting of this Society on April 13th Mr. George Parkin gave a valuable and interesting lecture on "The Rearing and Preservation of Insects." After describing the most prominent order of insects, and the special varieties which make themselves manifest either injuriously or beneficially on crops, garden or agricultural, Mr. Parkin pointed out that in order to meet the attacks of the one and to encourage the visits of the other a correct knowledge of their life history was an essential preliminary. He urged that this was best obtained by rearing and watching specimens of the various kinds through their several stages, and a great part of the lecture was devoted to describing how this could be done, and the apparatus required. The lecturer illustrated his observations by showing a choice and beautifully mounted collection of lepidopterous and coleopterous insects, drawings, and materials. A number of questions were answered, and in conclusion Mr. Parkin was most heartily thanked for his lecture, and for the very valuable services as an entomologist which he has for a long period rendered to the Society. Mr. J. S. Brown presided, and Mr. H. S. Goodyear occupied the vice chair.

— CAMELLIA RETICULATA.—Relative to Mr. A. Kemp's remarks (page 337) regarding this, the grandest species of Camellias, it may be additionally interesting to note that (somewhere I have read) some twenty-five years ago there was a fine specimen at Bank Grove, Kingston-on-Thames, the residence of Mr. Byam Martin, and stated to be 20 feet high by 50 feet in circumference. In one year it produced 4000 flowers! There is also a large specimen of it growing in a pot at the Botanical Gardens, Edgbaston, Birmingham, and which annually blossoms profusely, forming as it does a most attractive object in the large conservatory there. As a good companion to the former plant a remarkable specimen of the old Double White was recorded thirty-three years ago at growing at Sundridge Park, Kent, whilst at the present time there is also a fine and healthy plant of the same variety growing in an immense rectangular wooden tub, and the plant itself similar in size to the Bank Grove specimen. It was presented to the Society by a gentleman in the neighbourhood about two years since. I have a vivid recollection of having intimate relations with, upwards of forty years ago, a large tree of *Camellia reticulata* planted out in the unique ridge-and-furrow roofed conservatory at Trentham Hall Gardens, and which specimen, I believe, is still in existence there, consequently must now have attained to a gigantic size. In comparison with other species of the genus *C. reticulata* possesses one fault—if fault it be—and that is an inherent tendency to sparseness of foliage and leggy branches, unless attention is paid to frequent stopping of the young shoots during the plant's early youth.—WILLIAM GARDINER, *Birmingham*.

— CAPE FRUIT.—Fairly large consignments of fruit recently arrived by the "Norman." These, the bulk of which were Grapes, were offered for sale at Covent Garden Market. This importation showed a marked improvement on those previously received, the use of wood wool being largely responsible for the improvement.

— CYTISUS ELEGANS.—This is a shrub resembling *C. racemosus*, but superior in every way, the flowers of a deeper yellow colour, being larger, and borne more profusely. After flowering the plants should be cut back, and stood outside all the summer. It will be found necessary to trim the plants to keep them in good shape. The plant in question is hardier than *C. racemosus*, and is one of the very best for greenhouse decoration.—J. T.

— NEW YORK FRUIT STANDS.—For a week or two past the sidewalk fruit stands have been decorated with branches of *Kalmia latifolia*, its glossy green leaves being very effective in setting off the colours of Oranges, Bananas, and Apples. Leafy twigs of Wild Cherry are largely used during the summer for the same purpose, but these Laurel leaves have only lately come into such general use. The supply comes from the coast counties of New Jersey.

— RHODODENDRON FORSTERIANUM.—This was raised by Mr. Otto Forster in Austria, and is a hybrid between *R. Veitchi* and *R. Edgeworthi*. It has large white flowers, tinged with lemon on the uppermost side of the corolla tube. The corolla is divided into five spreading lobes, being crisped or wavy at the edges, measuring 5 inches across. The flowers are borne three to four in a head, and are very fragrant. This plant is now in flower in the temperate house, Kew.—J. T.

— VIOLETS.—I am sending you a few flowers of Lady Hume Campbell and Comte de Brazza White Neapolitan Violets. During the very severe weather in January and February last the plants were closely covered up for fifty-eight consecutive days, having neither light nor air all that time. When opened out they were as fresh and healthy as if they had only been shut up for a few hours. Lady Hume Campbell is not nearly so well known as its merits deserve.—NORTH-NORTHUMBRIAN. [The Violets are very fine indeed, some of them exceeding 1½ inch in diameter, and the leaves are extremely robust.]

— ANECDOTE OF THE MISSEL THRUSH.—During the severe weather of February, one of these birds suddenly made its appearance in the shrubbery attached to a Gravesend residence, the species not being often noticed in that district of Kent. His relations with the other birds that haunted the shrubbery (the owner being one of those kindly folks who dispensed crumbs and meat to "hard-up" birds at that time), were anything but of a friendly character. He chased them about at every opportunity, so they raised warning cries whenever he approached, but possibly he had been offended at the reception he received on his arrival. This bird fed voraciously on the berries of the Privet, and at last was found dead one morning, showing evident signs that these had disagreed with him. Whether it was excess after abstinence which caused this I do not know, or whether they were unsuitable food. Many birds that eat berries in the winter will not touch those of the Privet.—J. R. S. C.

— ROYAL METEOROLOGICAL SOCIETY.—At the meeting of this Society on the 17th inst., which was held at the Surveyors' Institution, Westminster, Messrs. F. C. Bayard and W. Marriott communicated a paper on "The Frost of January and February, 1895, over the British Isles." The cold period, which commenced on December 30th and terminated on March 5th, was broken by a week's mild weather, from January 14th to 21st, otherwise there would have been continuous frost for sixty-six days. Temperatures below 10° Fahrenheit, and in some cases below zero, were recorded in parts of England and Scotland between January 8th and 13th, while from the 26th to the 31st, and from February 5th to 20th, temperatures below 10° occurred on every day in some parts of the British Isles. The coldest days were February 8th to the 10th. The lowest temperatures recorded were 17° at Braemar, and 11° at Buxton and Drumlanrig. The mean temperature of the British Isles for January was about 7°, and for February from 11° to 14° below the average, while the mean temperature for the period from January 26th to February 19th was from 14° to 20° below the average. The distribution of atmospheric pressure was almost entirely the reverse of the normal, the barometer being highest in the north and lowest in the south, the result being a continuance of strong northerly and easterly winds. From a comparison of previous records the authors are of opinion that the recent frost was more severe than any since 1814.

— **SOLDANELLA ALPINA.**—We have at the present time this rare alpine plant in flower in the rockery here. It is an event, I believe, that seldom occurs in this country, its native home being that of the summit of the Alps on the snow level. To grow the plant well it requires to be planted in peat at the foot of a large stone with a north aspect.—GEO. BURROWS, *Warwick School*.

— **CEPHALANTHUS OCCIDENTALIS.**—This plant is commonly known as the Dwarf Button-ball. It is usually found in swamps and other damp places; but like swamp plants of every kind, with almost no exception, it thrives much better in dry ground than in its native place. There is quite a demand for it, says "Meehan's Monthly," by ornamental planters, many thousands having been sold by leading nurserymen during the past ten or twenty years. They grow much larger in cultivation than in nature, and plants may frequently be seen 7 or 8 feet in height, covered with many hundreds of its sweet-scented white heads of flowers. It is quite a favourite with insects; but for all their visits, it is adapted to self-fertilisation.

— **TASMANIAN APPLES.**—Tasmanian Apples are arriving in excellent condition this year, and a portion of the cargo of the s.s. "Cuzco," which brought 12,000 cases, was recently sold by auction at Covent Garden Market, realising prices which are said to be remunerative to the Colonial growers, whilst they are decidedly satisfactory to the London consumers. The excellent quality of the Tasmanian, Ribston, Cox's Orange, New York and Sturmer Pippins, and of the Scarlet Pearmain, Alfriston, and Prince Alfred are widely recognised. They fetched from 9s. to 16s. per case, coming into competition with the last of the Nova Scotia and Canadian Apples, which are selling at from 16s. to 20s. per case.

— **SEEDS WITHOUT FERTILISATION.**—Some years ago Mr. J. Smith of Kew had a plant of the Euphorbia family which was wholly pistillate; not another plant was known in Europe, and yet it produced perfect seeds. On this account, the plant being of a new genus, he named it *Cælebogyne*, a Greek term representing this curious behaviour. Peculiarities of this kind seem incomprehensible, and yet they are generally believed in by scientific men. Mr. David H. Day of Buffalo writes that he is quite sure a pistillate plant he has of *Thalictrum Fendleri* produces seeds without being pollenised, and the writer of this paragraph one year cut off all the pollen-bearing flowers of the Castor Oil plant, so that not a particle of pollen perfected, and yet the plant produced its complement of seeds. The whole experiment, however, can be so easily repeated that it is much better to consider this result as only a possibility until further experiments have been made.—("Meehan's Monthly.")

— **THE WORLD'S GREAT FORESTS.**—At a recent meeting of the American Association for the Advancement of Science reports were read by several members giving the results of their investigations as to where the greatest forests in the world are situated. The object of these investigations was principally to ascertain the exact influence of forests for equalising the climate and the rainfall of the globe. In the provinces of Quebec and Ontario, north of the St. Lawrence river, there is one great continuous tract of forest, which extends northwards to Hudson and Labrador, and which measures altogether about 1700 miles in length, and 1000 miles in width. There is also another large area of timber lands in South America, which occupies the valley of the Amazon, embracing large portions of Northern Brazil and Eastern Peru. This forest is estimated to measure about 2100 miles in length by 1300 in width. Recent explorations have shown that Central Africa possesses a tremendous forest. This forest is situated in the valley of the Congo, bounded on the north-east by the waters of the Nile, and by the Zambesi on the south. Its width has not yet been surveyed, but its length is estimated to measure at least 3000 miles from north to south. Again, there is another in Siberia, ranging from the plain of the Obi River, on the west, to the valley of the Indighinka, on the east, and embracing the great river valleys of the rivers Olenek, Lena, and Jana. The average breadth of this great forest region is 1700 miles, and the average breadth from east to west about 3000 miles. The principal trees in that vast and extensive taigas and urmans are the Conifers, comprising Pines of several varieties, Firs, and Larches. The central parts contain thousands of square miles, which have never been explored, and to which not even the most experienced trappers have ventured to enter. It is stated that the beautiful semblance of the lofty Conifers, which exclude the pale Arctic sunshine, is extremely bewildering to the eye—so bewildering that all sense of direction is lost. Their height averages about 150 feet, and they stand so closely together that walking among them is difficult.

— **THE FROST AND LAVENDER.**—So great are the depredations caused by the severe frost in the Lavender fields in the neighbourhood of Wallington, that a great majority of the plants have been totally destroyed, and in large fields, comprising several acres, the whole have been pulled up and burnt. As Lavender is extensively grown in the district, the loss of this season's crop will prove a serious item to the cultivators.

— **VALLISNERIA SPIRALIS.**—According to the "New Zealand Herald" this aquatic plant has lately been found in Lake Takapuna, and some of the residents on the shores were apprehensive that it might become inconvenient by blocking the entrances to their boat-houses. The leaves of this plant are sometimes as much as 15 or 16 feet long. It is a well-known tropical and subtropical water plant, but has hitherto been unknown in New Zealand. The news of the presence of this terrible weed in New Zealand is a most serious item. In Canada it has choked many rivers, and stopped the traffic on them, until the way has been reopened at great cost. Fortunately the Vallisneria can exist only in water. When brought to land and partially rotted it makes a capital manure, and is often ploughed in. It is also used for top-dressing meadows. The plant is at present unknown in Australia.

— **THE XL ALL FUMIGATOR.**—This aphid destructor is employed by Mr. James, of Farnham Royal, for fumigating both Cinerarias and Calceolarias. For the latter especially the strong nicotine fumes emitted by the vapour, with which the house is filled, are found to penetrate to the aphides, which infest the under sides of the leaves, much more effectually than smoke does, and even bloom is found, after repeated fumigations, to be quite unharmed. The process is a very simple as well as a clean one. The spirit which is dissipated in the house is poured into small metal dishes, a very small amount being ample. These dishes stand on a perforated metal cone, that encloses a glass spirit lamp. It is therefore but needful to have some three or four of these things in an ordinary house, light the lamps, the house is soon full of the powerful vapour, and every aphid is destroyed.—D.

— **TAPPING MAPLES.**—Professor Wood, while he was a member of the staff of the New Hampshire Agricultural Experiment Station, made some tests with regard to the flow of Maple sap which are of interest. Maples are usually tapped to the depth of about an inch, and this practice is based on the belief that the sap comes chiefly from the wood of recent growth, so that any tapping deeper than the layers made during the last six or eight years is useless labour and an unnecessary injury to the tree. Professor Wood's experiment, however, seems to show clearly that the flow of the sap is largely dependent on the depth of the tap, and that sugar makers may with great profit tap their trees to a depth of 4 or 5 inches. The additional injury to the tree is slight, says the "Garden and Forest," especially if the hole is small, and when a three-eighths of an inch bit is used and the bark is left uninjured the holes will be grown over the first summer after tapping. It seems that twice the amount of sap can be obtained by tapping 4 inches deep instead of 2, while the sap from deep boring is almost as rich as the other. The exposure of trees to the sun has much to do with the result from tapping on different sides, and there is little doubt as to the correctness of the popular view that the trees should be tapped on the south side wherever practicable.

— **PRESERVING SPECIMENS.**—Since the best teachers of science in these times insist that their pupils shall study objects before they receive much instruction from books, instructors of botany find it difficult to procure at any given season of the year enough fresh material to fully illustrate different subjects. In following any textbook, for example, enough specimens to illustrate the different sections of the book as they are taken up at different dates can rarely be found. To obviate this difficulty, Professor Beal writes to "Science" that he has collected quantities of stamens of different plants, say the Berberry, Lobelia, Cypripedium, and others, and preserved each kind by itself in a solution of 25 per cent. alcohol, or of 1 of formalin to 100 of water. These specimens are all ready when the subject of stamens comes to be studied, and the preserved objects can be placed in a small dish before the pupils when fresh specimens cannot be procured. If they are not allowed to dry they can be used for successive classes. In the same way Professor Beal has preserved forms of pistils, the torus and other parts of plants, including fruits of various kinds, such as half-grown Plums or Cherries, fruits of the Mandrake, Bloodroot, and Mulberry at different stages of growth, and in this way lessons in morphology can be made more impressive than they would be if one illustration was used at one time, and the others a week or a month later.

THE "DROOPING" DISEASE IN TOMATOES.

I AM sending shrivelled Tomato plants. They were looking fresh and well early in the week, then they commenced flagging, never to freshen up again. It is the same with pot plants, as those planted out, and it makes no difference whether chemical or animal manure only is used. Only a very few are stricken at present. I can see nothing wrong with the roots or stems, but suspect eelworms are the cause. Anyway, we have ordered a good supply of phenyle, and it will be used extensively directly it arrives. Some few Cucumbers are behaving very similarly. I should like to know what Mr. Abbey thinks about this case. We want to know something positive. No conjectures will meet the difficulty.—W. IGGULDEN.

[The Tomato plants are singularly healthy at the roots, and pushing a number from the stems, the soil being specially favourable for root formation and supplying nourishment. The leaves are attacked by what is known as the "drooping" disease, the tips becoming blackened, shrivelling, and dying as if destroyed by a corrosive substance, such as sulphate of copper, which is sometimes used as ammoniacal sulphate of copper solution for plant diseases, and is often as disastrous as the maladies it is intended to prevent or remedy. The disease, however, is not caused by ammonia, though it may induce a certain condition of plant favourable to the development of the micro-organism, which is the whole and sole cause of the affectation.

This is produced by a slime fungus, a myxomycetes, which, however, does not produce slime, as in the finger-and-toe or clubbing of Turnips and Brassicas generally, but is a near ally of the "browning" or "brownure" of the Vine, caused by the so-called slime fungus (*Plasmodiophora vitis*, *Masse*). The Tomato slime fungus, *Plasmodiophora tomati*, *Abbey*, blackens the leaves of Tomato plants, always commencing at the extremities, destroying the young tissues, so that they wither or suddenly collapse as if for want of water, whilst the older parts of the leaves become spotted with yellowish brown, turning to dark brown (hence the term "browning,") and finally decay.

The tissue is somewhat thickened in the first instance, which is due to the growth of the micro-organisms within the cells, the substance or juice of the plant being converted into jelly-like matter, which ultimately splits up into myriads of cells, it being in its active state a mere mass (plasmodium) of naked protoplasm, each cell surrounding itself with a wall and forming a spore, the resting stage of the myxomycetes, when the danger ceases, as these bodies cannot vegetate until certain conditions are available, as they often are in the spring, but more frequently towards the end of summer. These are but generalities, for the spores only lie until favouring conditions cause their bursting and the appearance of the zoospores to form a plasmodium, the union of two or more such zoospores being the only known means of fertilisation. Such plasmodia then creep about in quest of food, but how they get into Vine or Tomato leaves, or even those of Orchids on blocks or in baskets suspended from roofs, is not known. The Orchid spot slime fungus (*Plasmodiophora Orchidi*, *Masse*) cares nothing for the verdigris (acetate of copper) of the copper wire nor for sulphate, it having a remarkable rejective power—a sort of animal-like instinct, as well as power of movement. This is mentioned because sulphates have been advised for Tomato diseases, especially sulphate of iron and potash, and it is certain that myxomycetes thrive on sulphur, hence superphosphate is the worst known manure for Turnips, as regards attacks of finger-and-toe or clubbing. Perhaps it is necessary that the sulphur combine with ammonia; indeed, such is the case, for the majority of myxomycetes are always found thriving on substances rich in nitrogen, both as saprophytes on fungi proper, or as parasites on these, as well as some of the higher plants.

Evidence of the peculiarities and modes of life of the myxomycetes are essential for grappling with the mischief, and gardeners were the first to contend successfully with these lowest forms of vegetation. The "flowers" of tan (*Æthidium vaporarium*, *Fr.*) is a slime fungus, so called; it is not a fungus at all, but a lower form of vegetation even than "bacteria"—a myxomycetes, and half a century ago I was told to sprinkle such patches of the yellow spume with quicklime. The old gardener had practised this over fifty years, and from whom he had it I know not; all the same, it is the best remedy for slime fungus, whether as a saprophyte on tanner's bark in stoves or as a parasite in Turnips, Vines, Tomatoes, or Orchids—that is, rub the spots with quicklime until dry, as for canker in Cucumber and Melon stems. When we come to look into these things it is astounding to find how scientific many practical gardeners are, only they do not know it. Lime was known to the Romans as one of the best dressings for land, and it is certain that British farmers once believed in it, as is attested

by the numerous old chalk pits existing in various parts of the country, especially in Hertfordshire.

For "browning" in Tomatoes there are three things that may be of use—1, The preventive or remedy—a good dressing (1 peck to half bushel per rod) of quicklime to the soil. This will kill the plasmodia of the slime fungus, provide lime for forming nitrate of lime, either by nitrification or equivalent compounds by chemical agency; this will disfavour the myxomycetes, and benefit the plants against other parasites. 2, Cut off the affected parts and burn them, dusting the plants from base to summit with air-slaked, but very floury, lime. 3, Earth-up the plants with good soil, such as turves subjected to a temperature of over 212° previously, so as prevent any danger of eelworm, mites, or other parasites, and sprinkle a good handful of basic slag phosphate on every square yard of such top-dressing.

The cells of the Tomato leaves where thickened and yellowish brown are destroyed by the myxomycetes, being crammed with spores, which appear about the size of small Cabbage seeds when enlarged 1040 diameters. This hint may be of use to persons who wish to see the spores, but the plasmodium in the tissues appears as a jelly-like mass of naked protoplasm, and is only detectable by those conversant with normal cell structure and myxomycetes conformation.—G. ABBEY.]

HARDENBERGIA COMPTONIANA.

THIS beautiful plant was for many years known as *Kennedy* *Comptoniana*, and is not by any means a new plant, as a "Gardener" surmises, who sends a specimen and desires our opinion of the plant. When trained to the roof of a greenhouse or a conservatory, and bearing its long pendulous dense racemes of brilliant blue flowers, the beauty of this Leguminous plant can be fully appreciated, especially if it be associated with climbers bearing lighter or distinctly coloured flowers, as the contrast shows it to better advantage.

If planted in a border the soil must be specially prepared, a compost of peat, light turfy loam, and sand being suitable, providing good drainage, whether it be grown in a pot or border, as, like many of its relatives, it cannot endure stagnant moisture about the roots. Some care, too, is needed to keep the plant free from insects, particularly mealy bug, which has a great liking for it. Little pruning is requisite, except to remove the old bare or weakly shoots. The flowers, though small, are borne in such dense racemes (see fig. 61) that their size individually is scarcely noticeable. The petals, keel, and standard are bright rich blue, the last-mentioned portion of the flower having a ring of white at the base, which renders by contrast the blue colour even more intense.

VEGETABLE NOTES.

THE present is the third year in succession that Broccolis have succumbed to the severities of winter. Last year I decided, and as it proved, fortunately, to limit the amount of space occupied by ordinary kinds, and to increase that set apart for sprouting sorts, with the result that not a single plant of the former outlived the frost, while the outside leaves only of the latter were destroyed. Ever since the break up of winter we have been able to gather sprouts, first off the purple-sprouting, and latterly off the white. Than the last named there is no more delicious vegetable. I have also a good breadth of Carter's Universal Broccoli. Of this every plant is alive and healthy. Those who have not sown any of these ought to do so at once.

For very many years I have acted on a conviction that Spinach for winter and spring use is almost always sown too late in the season. The past season has again proved this to be correct, as I have had nothing off sowings made later than the end of August. It would appear that sowings of "winter" Spinach have generally failed this year, though Spinach is one of the hardiest of vegetables. For many weeks the quarter on which our crop is growing was covered with a sheet of ice, and yet the plants came out practically unscathed, and with a thaw the gathering of the crop was resumed. The sorts grown are Giant Viroflay and Parasseux de Catillon, the latter a capital round-leaved variety. Of the Lettuce-leaved I intend to sow a large space next autumn. Of those sown in September the one sort likely to be of any value is the "Slow Seeding," a dwarf-growing variety of Continental introduction. All the large round-leaved forms are much superior to the ordinary "winter" Spinach, a variety that might very well be dispensed with.

Lettuces, in frames as well as in the open, were all destroyed. Being somewhat short of full-grown plants, I filled several boxes in October with small plants, and sowed seeds at the same time. Kept in a cool house the former were ready to use by the end of January. October seedlings, which are not numerous on account of vermin having eaten the seeds and young plants, are now useful; and another sowing, made in the beginning of January, is almost fit for using. Of a few sorts tried, All the Year Round has proved the best.

Being somewhat hopeless of getting the earliest sowing of Peas into the ground at a reasonable time, I sowed seeds in boxes, and after

germination kept the plants standing in a cool structure until the ground was fit for planting. These plants have done so well that, notwithstanding the little extra labour involved, it may in future years be worth while to continue the practice. I sowed four sorts, but the one I am referring to was Chelsea Gem for the earliest crop. Leaf mould was employed for two reasons—first, because in it the seedlings would root freely; and next, because the roots could be lifted without breaking, and could be easily shaken free of soil.

The seeds were evenly distributed, at a distance of one-half to three-quarters of an inch apart. As soon in March as the ground was fit to work, the seedlings were laid in shallow trenches; two lines were planted together 9 inches apart, and the space between each plant was about 3 inches; the rows were 2 feet apart; a little free soil was placed

something to work for, and one not only works harder at the subject, but finds a greater pleasure in doing so.

We, as gardeners, must not look on theory as useless (it is to those who study theory alone), but as a valuable help; for, combined with good sound practice, it is a boon which only those who know it can appreciate. How many plants are killed annually by diseases which are preventable? How much manure is wasted by those not knowing the plant's requirements, besides the losses due to overfeeding? Many other instances could be given of the value of a theoretical knowledge of our work, but the above will suffice.

Readers, your attention was called last week by A. Kemp to the following paragraph written by "H. O. H.," page 290:—"Let a man by perseverance and study obtain a first-class certificate for the superior



FIG. 61.—HARDENBERGIA COMPTONIANA.

over the roots, and the rows were staked at once with short Spruce branches. It is only by contrasting these with the earliest sowing in the open ground that the full extent of the benefit is seen, and that not alone on account of the advanced growth, but also the greater vigour of the plants.—R. P. BROTHERSTON.

EXAMINATION IN HORTICULTURE.

I HAVE read the remarks on page 290 by "H. O. H.," also those by Mr. A. Kemp, page 333, on the above subject, and I think there is a certain amount of indiscretion in clinging as they do so tenaciously to the practical part of gardening alone; for the man who understands the science and practice of gardening has a much better chance of doing his work successfully than one who is only practical. It is well known that men could gain from books full particulars to enable them to pass an examination, but if they do so, what do they gain by it if they are not gardeners? If they are, they must naturally be better for their book learning; and what is more natural and encouraging than to test such knowledge by an examination? With such an object in view there is

cultivation of fruits, flowers, and vegetables at some of the leading horticultural exhibitions held at various places throughout the country, with a first-class testimonial from his employer for proficiency in the various branches of his calling, and I venture to say that will have more weight with the majority of employers than any first-class certificate granted by the R.H.S." To point out how very weak such an argument is only requires the answers to the following questions:—1, Have we all the same privilege in showing our products? 2, Are all the flowers, fruit, and vegetables grown by the successful exhibitor or the men under him? 3, Have we all the same advantages gained by good soil and manure? 4, Are the glass houses as efficient in some gardens as they are in others? 5, Is the district, its surroundings, and atmospheric conditions equal in all parts of the country?

Many good gardeners are not allowed to show. Many of the under gardeners grow the flowers, fruits, and vegetables, which others get the credit for. The soils differ so much in various parts of the country, consequently some gardeners have better advantages than others. In some gardens there are only old glass houses; could gardeners with these be expected to compete with those who have houses built specially for their requirements? Some again have advantages in being in a district

where there is nothing but pure fresh air, while others are in the vicinity of large towns. Looking at the disadvantages which debar some of us from gaining certificates for showing our fruits, flowers, and vegetables, would it not be an advantage when applying for a situation to have one of the R.H.S. certificates besides the usual references we get from past employers? No one would think of applying for employment with one of these certificates alone, but they would show an employer that we knew something more than the practice alone. Because men gain prizes at horticultural shows I do not consider they are the best gardeners on that account, for probably we might find as good if not better men amongst those who are not allowed to show.

I would advise young gardeners not to be led away by any kind of argument either way, but to think for themselves, and they will see that theory alone is perfectly useless; but combined with practice it is one of the best things a gardener can have to help him to understand the lifelong work in which he is engaged.—W. D., *Turnford*.



MARÉCHAL NIEL.

Of all Roses this is perhaps the most popular, and so well known and appreciated that nothing need be said by way of description or praise. It is a question if all private gardeners are aware how easily a good forcing stock of this fine Rose may be worked up by grafting, provided there is a good stock of plants in a sheltered position out of doors or under glass, the latter preferably, as scions may then be taken at any time during the winter. The best stock for the purpose is the Briar, seedlings or cuttings being suitable.

This Rose does not thrive long on the Manetti, and although on the Gifferrae it makes a wonderful growth, it is questionable if the plants will thrive for any length of time, excepting on a light soil. According to my experience the latter stock is more suitable for budding on in the open than for grafting. Presuming that a sufficient number of stocks are potted during the autumn in 60-sized pots, a start may be made—say, at the new year. A propagating case in a greenhouse or stove should be set apart for the purpose, large enough to hold about 100 plants, as if this is not enough a succession may be worked.

The stocks should be placed inside three or four weeks previous to working, in order to have them well on the move. The scions must be taken from wood of the previous year, not pithy, and as near the same size as the stock as may be. At the season mentioned they should be taken from an indoor plant, as most of the outdoor growths would be rendered unfit for the purpose by frost. If, however, these are taken off in the autumn, laid in a sheltered place and carefully protected, they are quite as good as indoor growths. Each joint will make a scion, but if wood is plentiful they may with advantage be left a little longer. Head off the stocks as low as possible, about 1½ inch being ample height for working. This in order that the union may be buried at subsequent potting.

It is a good plan to thoroughly rinse the pots and lower parts of the stocks before commencing, as this prevents the possibility of grit being introduced into the point of union. The ordinary whip graft is eminently suitable, and as it is the easiest system, should be practised. See that the outer hooks unite at the point of the scion and on one side; if on both so much the better. This requires a little manipulation if the stock and scion differ in size, but is conducive of a firm union. Tie the grafts firmly with raffia previously moistened, no wax or moss being required if the work is performed expeditiously, and plunge them at once in the propagating case. Syringe lightly twice or thrice daily, and keep quite close and shaded until the union is complete and the plants are beginning to grow. After this admit air very gradually, and never allow the leaves to flag. If carefully inured to the light and air of the house the frames or glasses may generally be taken off when the growths are about 2½ inches in length. It is better to leave the plants in the case for a few days for fear of their flagging, when it will be advisable to again cover them for a short time in the middle of the day.

After removing them from the plunging material they may be stood on a moist stage and kept far enough apart to allow of syring between the pots, also sprinkling the plants freely on bright days. Thought must now be given to where the plants are to be grown, and they are so accommodating that a place may be found for them in most gardens. A good place for the first few months is a midseason vinery, allowing them to grow straight up, tying the growth loosely to stakes as it develops. If the plant breaks naturally, two or even more shoots may be allowed to grow, or if this style of plant is preferred they may be stopped at the required height and the necessary number of shoots encouraged. The first shift should be given as soon as possible, as the plants quickly become stunted in the small pots. Four-inch pots will be large enough at first, using a compost of clean fibrous loam and a little leaf mould pressed rather firmly, and if the loam is very heavy a little road grit or sharp sand may be used.

As soon as these pots are filled with roots place the plants in the 9 or 10-inch size, a few half-inch bones being used with one large crock for drainage, and pure fresh loam for potting. This must now be

rammed very firmly, as a short-jointed solid growth is desirable. If a light position under glass is now unavailable owing to the foliage of the Vines or other occupants causing too dense a shade, the plants may be stood out of doors in a warm sheltered spot, not exposing them to the sun immediately after repotting, or the foliage will suffer, but gradually inuring them to the altered conditions. If care is taken that the plants are not checked in this or any other way, they will by the end of September have made fine growths of from 10 to 15 feet in length, and this should be hard and well ripened to within a couple of feet of the top at most. If the plants are intended for forcing they must on the approach of severe frost be placed in a cool airy house or shed where they can be protected and taken inside as required. In any case they will need some protection, as such plants are naturally more tender than those grown in the open air.

In order to induce the free production of lateral shoots for flowering, the stems must be trained round stakes placed in the pots, trained over an arching trellis or depressed in any way according to convenience or fancy; and after flowering should be at once cut down to within a few eyes of the bottom, when strong vigorous shoots will be produced to be grown on in a similar way the ensuing year. Where a large number of plants are required, grafting may go on all through the spring, summer, and early autumn—at any time in fact, though the last three months of the year are the least suitable.—H. R. R.

ANEMONE BLANDA.

THE flowers of this species which expand in the earliest days of the year are ever welcome. Sometimes the last days of the year give us a few of its blue blossoms, but generally it waits until the end of January or the beginning of February before opening its enticing flowers. Although it is welcome before most of the Snowdrops or the Winter Aconites flower, it is doubly so when it gives us a blue to harmonise with the white and yellow of the others. Thus, when the Snowdrops and Aconites are in bloom, and a few hours of sunshine come to brighten the garden, this "Fair Windflower" forms a fitting companion, and the trio give us something to gaze on with the highest appreciation. It seems invidious, among the many beautiful Anemones, to single out this one as especially worthy of the English name of "Fair Windflower;" but all the same, *A. blanda* is worthy of a pleasing name, and is so beautiful that every garden of hardy flowers should include it among its choicest occupants.

It appears to be closely allied to the beautiful *A. apennina*, but presents a few features by which it may be distinguished from that species. In its best forms the flowers are of a deeper blue, and more finely rayed, besides being of a larger size. The styles are also black and pointed, and the leaves smoother, but harder and more dwarf, than those of *A. apennina*. The leaves are what are known as triternate, with the segments deeply cut and acute, and the involucral leaves stalked, trifid, and deeply cut. The flowers are said to have from nine to fourteen sepals, and vary in size, some of the best forms being over 2 inches across. The height is also variable, but it generally grows to about 6 inches high. It is believed that it came originally from Greece, but it is also found wild in many parts of the Mediterranean region. In the course of last year the writer heard of a very fine variety, which had been sent to this country by Mr. Edward Whittall of Smyrna, and which that gentleman believes came from Samos. Some good forms are also included among the tubers from Cyprus and Bithynia.

The variation in colour has already been alluded to. This ranges from deep to pale blue, some having a slightly rosy tinge; and there are also white varieties, differing considerably in purity of colour. A good deep blue variety is sometimes offered for sale under the name of *Ingrami*.

In order to enjoy to the full the beauty of *Anemone blanda* it should have a sheltered and sunny position, its flowers only opening properly when the sun is shining upon them. A little shelter from cold winds is an inestimable advantage to such early blooming plants as this Windflower. In my garden it has done well in the soil generally recommended—sandy peat or light loam—but recently one of my correspondents informed me that it was much finer if grown in a clayey soil. He has had great experience in the cultivation of hardy border flowers, alpine, bulbous and tuberous rooted plants, so that one feels disposed to experiment in the way of treating *Anemone blanda* with a heavier soil than formerly.

With a plant which naturally blooms so early it is desirable to have it planted in the autumn, but it is probable that some bulb dealers may still have dry roots in stock which could still be planted. In placing them in the earth much difficulty is generally experienced in distinguishing which portion of the rough-looking tuber should be placed downwards. Generally a few fibrous-looking roots are attached to it, and when this is the case these denote that that side of the tuber should be placed downwards. When these roots are absent it is sometimes possible to discover the knob-like points from which the leaves and flowers afterwards emerge, and which should be placed upwards. At times, however, careful examination fails to point out either roots or crowns, and one has to have recourse to planting them sideways, although it is sometimes difficult to do even this, so unshapely are some of the collected tubers when received. When large enough *Anemone blanda* may be increased by division of the tubers, and a convenient mode of increase to many is by means of seeds which germinate with more certainty if sown as soon as ripe.

This Windflower is subject to a fungoid disease which causes much

loss, and for which there appears as yet to be no satisfactory remedy. Anti-blight powder may be tried, and it is possible that in some gardens the tubers may require to be lifted annually, dried, and replanted. So charming a flower well deserves any care which is required to make it succeed, and its bright flowers will make it a universal favourite.—S. ARNOTT.

EXPRESS GRAPE GROWING.

MR. INNES' article in the *Journal of Horticulture*, page 328, anent the above subject, is interesting in these commercial days. His success as there detailed is remarkable, and no doubt many of your readers, including myself, would like to know in what sort of compost these Vines were planted to make such headway in the time stated. If Mr. Innes can find the time to impart further information it will be instructive and appreciated. I have seen samples of the fine Grapes grown at Derby, and heard excellent accounts of the same; I therefore await with interest his reply to my request, if convenient to him to do so.—J. J. CRAVEN.

THE extraordinary case of express Grape, or more particularly Vine growing, by Mr. Innes, which he records on page 328, has set me, and doubtless many others also, longing to know more of the methods which bring about such very satisfactory results; and if Mr. Innes will kindly tell us I feel sure space will be found to do so in your columns, which he seems to fear.

It would be more than interesting to learn how to produce such crops as described from Vines no stronger than straws when planted out of 3-inch pots in the middle of August, and thus having only the tail end of the summer to "cover the house with splendid, well-ripened wood." According to Mr. Innes' figures the young canes were cropped at the rate of, for temporary Vines—Gros Colmans—14 lbs. per rod; and as if to prove how groundless our fears are of overcropping young Vines, Mr. Innes tells us he cropped the permanent Muscats at an average of 15½ lbs. per rod of 7 feet, or nearly 2 lbs. heavier than the temporary Colmans.

It is especially noteworthy that these Vines are "still in splendid condition;" had they been planted early in April instead of the middle of August the results, though still excellent, would not have been quite so surprising.—W. H. L.



THE EARWIG BAFFLER.

ON page 341 a drawing is given of one of these. I may state I have made these in different forms since 1864, and sold one to Messrs. G. Neighbour & Sons in that year. The principle, as shown at page 341, differs in no respect from what mine were, unless it was the hollow centre which admitted a pot or the leg of a bee hive.—W. T.

[We have received letters on this subject from two other correspondents, in substance identical, but as neither of them has sent his name and address the letters are not inserted.]

CHRYSANTHEMUM NOMENCLATURE.

THE American Chrysanthemum Society, when it resolved to register no new seedlings that bore names already in use and appearing in the English N.C.S. catalogue, acted in a manner that is deserving of our highest commendation. The rule has resulted in the greatest possible benefit to cultivators on both sides of the Atlantic by preventing much confusion that would certainly otherwise have ensued from florists of different nationalities whose language was the same.

In perusing the lists of American novelties there is always much pleasure to be derived in noticing the distinctive, if sometimes a little inelegant, style of nomenclature that the transatlantic growers adopt. Prominent examples for 1895 are as follows:—Latest Fad, Brigand, Diavola, Experiment, Bronze Giant, Octoroon, Parting Guest, Oakland, Millbrook, Philadelphia, Nemesis, Sunrisc, and Radiance.

What a contrast to some of those from the Continent; we are to have another Etincelant, Vesta, Hebe, D'Artagnan, Tendresse, Ganymède, Boule d'Or, L'Echevelé, Surprise, Mignonne, and others which have been used two or three times over.—P.

SHORT NOTES FROM AMERICA.

MR. SPAULDING'S catalogue of new Chrysanthemums contains about sixteen pretty little photo engravings of American seedlings set up in the prevailing fashion there—viz., in vases.

Mr. Hugh Graham, the raiser of Philadelphia, and the only American who has ever been awarded a medal of our English National Chrysanthemum Society, is sending out three other new seedlings this year called Mrs. Wm. Hurley, Mrs. Thomas E. Wiedersheim (both of them certificated by the American Chrysanthemum Society), and Katherine Leech.

Messrs. Pitcher & Manda's catalogue for 1895 is a very artistic production, and contains, among numerous other illustrations, phototype

pictures of Chrysanthemum J. H. Troy, the much-talked-of Pitcher and Manda, and a pretty chromo-lithograph of four or five hardy Pompons from a painting by Paul de Longpré.

Special Chrysanthemum seeds fertilised in Japan are now being offered for sale in the States, and are said to have been crossed and fertilised by secret methods unknown outside the land of the rising sun.

Messrs. Nathan Smith & Son in their new list give the names of the best varieties for market plants. Most of them are, of course, of American origin, but in whites they mention Mdme. F. Bergman and *Enfant des deux Mondes*; in pinks, Mrs. Bruce Findlay; in crimsons, Wm. Seward and John Shrimpton, which are all from this side.

Hitherto Pompons have not been much in vogue with the American Chrysanthemum fancier, but one well-known firm announce that they have secured from various sources a magnificent collection of about 100 distinct varieties.

Large numbers of the best American Chrysanthemums are now in the hands of the French raisers, who will, no doubt, be able to turn them to good account for seedling purposes, and by this means help to improve the quality of the Continental stock, which a year or two ago began to show signs of exhaustion.—P.

ROYAL HORTICULTURAL SOCIETY.

APRIL 23RD.

THE meeting at the Drill Hall on Tuesday last was a very successful one in every way. Both for the Orchid and Floral Committees the exhibits were many numerous and of splendid quality, while the display as a whole was greatly improved by the presence of the Auriculas and Primulas staged in conjunction with the National Auricula and Primula Society, and a report of which will be found elsewhere.

FRUIT COMMITTEE.—Present: T. Francis Rivers, Esq. (in the chair); with Dr. Hogg, Rev. W. Wilks, and Messrs. G. Bunyard, G. Reynolds, H. Balderson, F. Q. Lane, G. Wythes, J. Hudson, C. Herrin, W. Farr, J. Cheal, A. Dean, and J. Wright.

With the advance of the season we naturally find an increase in the variety of subjects placed before the Committee, and on the present occasion both fruits and vegetables were creditably represented.

Mr. W. Meads, gardener to A. Henderson Esq., Buscot Park, Faringdon, sent very handsome fruits of the Countess Melon, for which a cultural commendation was awarded. Seldom are finer examples seen at this early period of the year, and hence the award in question.

Excellent fruits of the Royal Sovereign Strawberry came from the Horticultural College, Swanley. They were of good size and superior flavour, the best, in the latter respect, up to date; also fine fruits of Sir Joseph Paxton. A cultural commendation was accorded for both samples, and the Royal Sovereign was highly commended as a forcing variety.

Andrew Pears, Esq., Spring Grove House, Isleworth (Mr. W. Farr, gardener), sent bunches of ripe fruit of *All the Year Round Tomato*, and also fruiting plants, for showing the productiveness of the variety. The fruits are below medium size, but borne in long racemes, after the manner of Horsford's Prelude, the shape of the fruits resembling Chiswick Red. They are very firm and of excellent quality, and a first-class certificate was unanimously awarded.

Messrs. B. S. Williams & Son, Holloway, sent a plant and excellent pods of a forcing Kidney Bean. As it was not named, it was proposed to be sent to Chiswick for trial. Mr. G. Wythes sent a dish of very fine Seakale, grown and blanched with soil in the open air, also a splendid sample of Sharpe's Victor Potatoes. Mr. Wythes sent as well several bunches of Foster's Seedling Grapes, from Vines in pots—very good, but not quite ripe. A cultural commendation was unanimously awarded for Mr. Wythes' highly creditable contribution. This unforced Seakale is most valuable, but only provided in comparatively few gardens.

Mr. T. Goldsmith again sent the Burfield Apple from Leonardslee. It is undoubtedly a showy Apple, and would sell freely in shops; but as the fruits were not of sufficiently high quality for dessert, the Committee desired to test the cooking quality of the fruit prior to venturing an opinion on the merits of the variety.

Messrs. Sutton & Sons, Reading, sent a number of plants of *Suttons' Hearting Curled Kale*—evidently a very hardy, distinct, and excellent variety, and an award of merit was voted with unanimity. The firm also sent twenty-one varieties of Radishes—all good, the majority representing varieties for growing in the open air, but some recommended for forcing. Of these the most distinct was *Suttons' Earliest Frame*, that may be described in the French way as having crimson roots, or an oval shaped Radish drawn out to thrice the usual dimensions; it was crisp and excellent, and an award of merit was granted forthwith. The other varieties were also as good of their kinds as could be desired, both as regards crispness and colour. An attractive assortment of Variegated Kale was also staged. In addition to the awards mentioned, a cultural commendation was awarded for the entire collection.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); with Messrs. John Fraser, Owen Thomas, C. T. Drury, H. Herbst, H. B. May, E. Molyneux, G. Stevens, J. H. Fitt, J. Jennings, R. B. Lowe, Chas. Jeffries, J. D. Pawle, W. Bain, Geo. Gordon, E. Beckett,

Chas. E. Shea, C. Blick, Chas. E. Pearson, H. J. Jones, G. Paul, H. Turner, Jas. Walker, G. Nicholson, H. S. Leonard, and W. J. Grant.

Mr. P. Perry, gardener to J. C. Tasker, Esq., Middleton Hall, Brentwood, showed a charming group of pot Roses, for which a silver Banksian medal was awarded. The varieties included Her Majesty, Innocente Pirola, Mrs. John Laing, Madame Lacharme, and Merveille de Lyon, all the plants being admirably grown.

Pot and cut Roses were extensively and well shown by Mr. W. Rumsey, Joynings Nurseries, Waltham Cross. The plants in pots were splendidly grown, while the cut blooms left little to be desired. Niphetos, Maréchal Niel, and The Bride were amongst the very best (silver-gilt Flora medal).

Cannas in good variety were arranged by Messrs. Paul & Son, The Old Nurseries, Cheshunt, who also staged Roses in pots. Amongst the most noticeable were Carmine Pillar, Madame Hoste, Elise Finger, Magna Charta, and Gustave Piganeau (silver Flora medal). Amaryllis in variety and splendid condition were staged by Messrs. B. S. Williams and Son, Upper Holloway, and a basket of *Leschenaultia biloba* major from the same source was very charming (bronze Flora medal).

Mr. G. Jackman, Woking Nurseries, arranged a handsome collection of hardy plants and a few Roses. Double and single Primulas, Violas, *Myosotis*, Poet's Narcissus, Fritillarias, and *Andromeda floribunda* were very prominent (bronze Flora medal). Foliage plants were well staged by Mr. H. B. May, Upper Edmonton. *Pteris cretica* Wimsetti received an award of merit, as also did *Tropæolum Coolgardie*. Many other Ferns were shown, and also *Dracenas* and Palms (silver Flora medal).

Mr. G. Reynolds, The Gardens, Gunnersbury Park, showed exceptionally well grown plants of *Primula obconica*, receiving for them a bronze Banksian medal. Mr. J. Walker, Thame, staged cut Roses in great variety, and was awarded a silver Banksian medal.

Cut Roses in superb condition came from Mr. F. Cant, Braiswick Nurseries, Colchester. The flowers were of handsome shape and superb colouration (silver Flora medal). Cannas, Carnations, and Primulas came from Messrs. H. Cannell & Sons, Swanley; Mr. Mount, Canterbury, staging cut Roses in very charming condition and variety. A silver Flora medal was recommended for this exhibit.

A handsome plant of *Cineraria cruenta* came from the Royal Gardens, Kew. The Guildford Hardy Plant Nursery sent a superb exhibit of Primulas and other hardy flowers (silver Flora medal). A cultural commendation was accorded to Mr. F. Cornish, gardener to Lady Bowman, Dorking, for a pan of *Epigea repens*. Mr. W. Bain, gardener to Sir Trevor Lawrence, Bart., Dorking, sent Primulas and Polyanthus in variety, and was adjudged a bronze Banksian medal.

Daffodils and Tulips were splendidly shown by Messrs. P. Barr and Son, King Street, Covent Garden. Amongst the most prominent were Autocrat, Horsefieldi, Exquisite, Captain Nelson, Magog, Duchess of Westminster, Barri conspicuus, Acis, Madame de Graff, and Glory of Leyden (silver Flora medal). Hardy shrubs were exhibited by Messrs. W. Paul & Son, Waltham Cross, many kinds being included.

Messrs. J. Veitch & Sons, Chelsea, exhibited baskets of new varieties of blue Primroses and *Alyssum saxatile citrinum*, also *Epiphyllums* and *Gloneria jasminiflora*. The Primulas sent from the Royal Gardens, Kew, were of exceptional beauty, and comprised many rare forms. *Amherstia nobilis* was also sent from Kew. Messrs. W. Paul & Son staged a plant of a charming new fimbriated *Camellia* named Bathazar. The Rev. G. H. Engleheart, Appleshaw, received a silver Banksian medal for a collection of Daffodils that comprised many seedlings of his own raising.

Messrs. H. Low & Son sent a box of their new Mignonette, Bush Hill White; while Mr. T. S. Ware exhibited Narcissi in grand condition. *Poeticus poetarum*, Barri conspicuus, Empress, Emperor, Sir Watkin, and Leedsi amabilis were particularly striking (silver Flora medal). G. F. Wilson, Esq., Weybridge, received an award of merit for Polyanthus Hermand.

Mr. C. Wright, gardener to T. McMeekin, Esq., Norwood, staged flowers of two seedling Rhododendrons.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair); Dr. M. T. Masters; with Messrs. Jas. O'Brien, De B. Crawshaw, H. M. Pollett, H. Ballantine, W. H. White, H. J. Chapman, F. Sander, J. Jaques, E. Hill, W. Cobb, Thos. Statter, G. Courtauld, T. B. Heywood, G. Shirland Ball, and W. H. Protheroe.

Mr. H. J. Chapman, gardener to R. I. Measures, Esq., Cambridge Lodge, staged a number of cut Orchids, in which forms of *Vandas* largely predominated (silver Banksian medal). The Orchids, intermingled with Ferns, exhibited by Messrs. B. S. Williams & Son, Upper Holloway, were very charming, and comprised *Chysis bractescens*, *Odontoglossum Halli*, *O. triumphans*, *Coelogyne Massangeana*, *Dendrobium superbum*, *D. Wardianum*, and several fine *Cypripediums*, besides many others (silver Banksian medal).

Mr. Johnson, gardener to T. Statter, Esq., Stand Hall, Manchester, staged a plant of the superb *Cattleya Prince of Wales*, which is one of the most beautiful hybrids we have. A few Orchids were shown in good condition by Mr. G. Cragg, gardener to W. C. Walker, Esq., Winchmore Hill. Mr. White, Orchid grower to Sir Trevor Lawrence, Bart., Dorking, sent plants of *Dendrobium cretaceum*, *Masdevallia Armini*, *M. fragrans*, *Eria* species, and others, all of botanical interest. Mr. T. Stafford, gardener to F. Hardy, Esq., Cheshire, showed a few Orchids, including *Cypripedium Gowerianum magnificum*, which was accorded an award of merit.

De Barri Crawshaw, Esq., Rosefield, Sevenoaks, showed a plant of *Cypripedium Mulus*, Rosefield variety. Mr. Johnson, gardener to

G. Marshall, Esq., Grimsby, arranged a small group of Orchids comprising *Cattleya Harrisii*, *Dendrobium Paxtoni superbum* (award of merit), and several others. Messrs. Veitch & Sons, Chelsea, exhibited a varied collection of Orchids composed of *Cymbidium Lowianum*, *Oncidium concolor*, *Cattleya Mendeli*, *C. Lawrenceana*, *C. Schilleriana*, *Laelio-Cattleya Epicasta* (first-class certificate, see below) *Laelia Latona*, a hybrid between *L. purpurata* and *L. cinnabarinus*, *Odontoglossum triumphans*, *Cypripedium Orion*, *Masdevallia ignea*, and numerous others (silver Flora medal).

The collection of Orchids shown by Messrs. F. Sander & Co., St. Albans, was very beautiful, and comprised many excellent forms, amongst which the following were prominent:—*Masdevallia Veitchii*, *Cypripedium macrochilum*, *Cattleya Frederick Boyle*, *C. Schroderæ*, *Dendrobium thyrsiflorum*, *Epidendrum nemorale*, *E. Rogersi*, and *Odontoglossum cirrhosum*, *hystrix nobilis*, *crispum roseum*, *crispum triumphans*, *Pescatorei*, and *Edwardi* (silver Flora medal).

Cattleyas and other Orchids were shown by W. M. Appleton, Esq., Weston-super-Mare. Messrs. W. L. Lewis & Co., Southgate, staged a bright and well-diversified collection of Orchids, of which *Lycaste trifoliata Lehmani* received an award of merit (silver Flora medal). Messrs. H. Low & Co., Clapton, also Orchids in splendid form, including *Cymbidium Lowianum*, *Cattleya Mendeli*, *C. Mossiæ*, *C. Schröderæ*, and several others (silver Banksian medal).

Cattleya Schöleræ in various forms was shown by Messrs. Heath and Son, Cheltenham, who also staged *Phalænopsis* and *Odontoglossums* (silver Banksian medal). An award of merit was accorded Paron Schölder, Egham, for *Dendrobium Hildebrandti*, which is described below.

Mr. F. J. Thorne, gardener to Major J. J. Joicey, Sunningdale Park, staged magnificent specimens of *Dendrobium atro-violaceum*, *Cypripedium Elliotianum*, both of which received cultural commendations. The same exhibitor also staged *Phaius Blumei* var. *assamicus*.

G. T. Pitt, Esq., Stamford Hill, was accorded a silver Flora medal for a handsome exhibit of Orchids in variety.

In addition to the general show there was a class for a collection of Narcissi, and many very handsome flowers resulted. The Rev. S. Eugene Bourne, Dunston Vicarage, Lincoln, was a splendid first. Mr. Downes, gardener to J. T. Bennett Esq., Cheshunt, was second; M. Cammell, Esq., Loxwood House, Billingham, third; and W. J. Grant, Esq., Bassaleg, Newport, fourth.

CERTIFICATED PLANTS.

Bougainvillea speciosa superba (G. Stanton).—This is a richly coloured form of the type (award of merit).

Cattleya citrina (W. Rapley).—Though keeping the old name, this is a distinct improvement on the well-known type. The colour is the same, but the flower is of better substance, while the lip has an edge of creamy white (first-class certificate).

Cypripedium Gowerianum magnificum (J. Stafford).—This variety is of fine form and of great substance. The flower much resembles the type, but is somewhat larger and of finer colour (award of merit).

Dendrobium Hildebrandti (Baron Schröder).—The sepals and petals of this *Dendrobium* are creamy white, the lip being of the same shade, with a yellow throat (award of merit).

Dendrobium Paxtoni superbum (J. Johnson).—This is a much improved form of the well known type (award of merit).

Laelio-Cattleya Epicasta (J. Veitch & Sons).—This is one of the finest bigeneric hybrids that this (or any other) firm has introduced. It is the result of a cross between *Cattleya Warscewiczii* and *Laelia pumila*, of which the latter was the seed parent. The sepals are narrow, long, and of the most pleasing shade of purplish rose, the petals being broad, of great substance, and also of that colour but in a rather deeper shade. The lip, however, may be termed the best feature. The outer edge is deep purplish rose shading to bright maroon, then comes a band of pure white shading to yellow, the base of the throat being bright purplish rose. The illustration, fig. 60, page 353 (sketched at the Drill Hall), will convey to our readers the form of this handsome flower (first-class certificate).

Lycaste trifoliata Lehmani (W. L. Lewis & Co.).—This is a charming *Lycaste*. The sepals are pale green, and the petals white tinged with green. The lip is very much fimbriated and of the same colour as the petals (award of merit).

Polyanthus Hermand (G. F. Wilson).—This is a very beautiful variety with rich purplish blue flowers of large size (award of merit).

Pteris cretica Wimsetti (H. B. May).—This is a very charming crested form of the popular *P. cretica* (award of merit).

Rose Marchioness of Londonderry (Paul & Son).—This is a fine Hybrid Perpetual with creamy white flowers of fine form (award of merit).

Rose Bridesmaid (Paul & Son).—This Rose belongs to the Tea section, and is of good substance. The colour is pale salmon pink (award of merit).

Tropæolum Coolgardie (H. B. May).—This is a very floriferous yellow coloured kind that will doubtless be of much value for pot culture (award of merit).

THE PRIMULA CONFERENCE.

Under the presidency of Professor Michael Foster, F.R.S., a Conference on Primulas was held in the hall, at which a paper on "New Primulas" was read by Mr. J. G. Baker, F.R.S., and another on the

"Culture and Classification of Primulas" was given by Mr. Selfe-Leonard. The Chairman, on introducing the essayists, remarked that horticulturists derived a large amount of pleasure in cultivating and adding to the stock of plants already known, and that gardeners by their superior art can do a great deal in the way of hybridisation and other means towards bringing into existence varieties of plants which Nature under ordinary circumstances does not.

Mr. Baker then read a highly interesting and exhaustive paper, in which he portrayed the amount of work that had been done on the genus *Primula* since the last Conference was held in 1876. At that time there were between seventy and eighty varieties, and now there are 150 known, so that they have been nearly doubled during the last twenty years. The essayist then went on to give a graphic and historical view of the whole genus, stating that in 1888 Dr. Parker of Berlin wrote a monograph of the whole, in which he divides the genus into twenty groups. Another book, also from Berlin, deals with the European species. According to the "Kew Herbarium" out of the 150 species now known fifty-four of them hail from China and Japan.

Of the *Sinensis* group, of which there are fifteen varieties, seven are natives of China, one of Japan, and the remainder from the Western Himalayas. The well-known *verticillata* is a native of Arabia and Abyssinia, and *bullata*, of which there are four varieties not yet in cultivation, is a native of China; this is an interesting group, very like Primroses. *Primula vernalis*, to which Primroses and Cowslips belong, is confined solely to Europe.

By the aid of a diagram a vivid description of the different species was given, also showing in what parts of the world were their native habitats.

In a few brief remarks on the cultivation of new and as yet little known Primulas, Mr. Baker said he thought the best method was if possible to obtain all available information on the habits and positions of growth in their native climes, and failing that to try the treatment under which known members of the same group were grown.

Mr. Selfe-Leonard, in course of his paper, said that in looking at hardy Primulas from a gardener's standpoint, it was a surprising thing to notice the small extent to which they were cultivated in English gardens, considering the comparative ease with which they may be grown. This might be traced to the fact that some few had failed to give satisfaction, and so the whole class had become discredited.

At the last *Primula* Conference a list of those then known was published, since then the number of species and hybrids has been greatly augmented, which, however, are in need of a better classification, as competent botanists think that the confusion which exists amongst them is extreme. For instance, *Primula integrifolia* has been known by five different botanists under other names.

In commencing the cultivation of these plants he thought the best plan was to begin with those varieties which are most distinct and easy to grow. In exhibition, too, he thought the mode of staging was not of the best, and could be made to look much more pretty and natural than by the present system of showing them in pots. The classes, too, might be better arranged—namely (1) Greenhouse species; (2) Large habited, hardy, and of easy culture; (3) Small growing mountain varieties. The reasons for this was that the greenhouse kinds, though beautiful and interesting, were out of place with small and alpine sorts, though all at present can be accommodated under one class at shows.

In speaking of Alpine Primulas he said the culture was simple, the treatment usually applied to Auriculas being suitable, with the exception that they should not be allowed to go entirely to rest in the winter as is the case with the former. Soil was not of the first importance, as good loam with a little sand suits them well, abundance of good drainage being essential. The east and north sides of rockeries were the most suitable for them, as the partial shade is not only congenial to them but assists in prolonging the flowering.

That they delight in cool conditions is seen by the fact that Northern Europe is more suitable for them than South. He thought a chalk soil was in no way essential for them, and they may be grown in gardens to advantage without the presence of a particle of chalk or lime. In selecting a few suitable for the rockery and garden the following were given—*P. Auricula* (golden yellow), *P. viscosa nivalis*, *P. rosea* in its best varieties, *P. viscosa major*, in many forms, *P. spectabilis* and its varieties, and *P. marginata*, together with *P. integrifolia*, *P. Fosteri*, *P. longiflora*, and several others.

But little discussion followed, and the Chairman, on rising to propose a vote of thanks to the essayists for their interesting papers, said he thought the Society might issue an authentic list of known Primulas that would prove of great service, and that botanists, when collecting and sending home any new ones, might also send some details regarding the character of the soil in which they were found growing, as this likewise would prove useful in their cultivation in England.

After the usual votes of thanks had been given, the Conference was brought to a close.

ILLICIUM FLORIDANUM.

THIS plant is commonly known as the Florida Orange tree, and "A. B." will find no difficulty in growing it. The flowers of this *Illicium* (fig. 62) have a strong aromatic odour resembling aniseed, and are composed of a great number of radiating, slightly recurving, dark reddish crimson flowers borne singly near the points of the shoots, but thrives best in a warm sheltered position. In the southern and western counties of England, and near the sea coast, it succeeds in

the open border, but in northern or cold districts it might with advantage be grown in cool conservatories or greenhouses. It requires an abundant supply of water all through the summer, and must not be allowed to become dry in the winter. A mixture of peat and light loam forms a suitable compost for it when grown in pots, though in the open air it will flourish in any ordinary garden soil, providing it is fairly rich and of a loamy or peaty nature.

MARKET PLANTS AND FLOWERS.

(Continued from page 344.)

THE market grower with capital has a manifest advantage over one whose capital lies, as it were, in his hands. The one can use a little more patience and manipulate his productions to perfection, while the other



FIG. 62.—ILLICIUM FLORIDANUM.

rushes off to market with more moderate stuff, and, as a matter of course, he neither finds so ready a sale nor so good a price. Yet if he be favourably situated, and not overburdened with rent, and strictly sober and industrious, there are few professions that will give him more comfort in the decline of years than that of horticulture.

Railway facilities are of vast importance to market growers; there they can obtain in a general way fuel for the furnaces, and send off light goods, such as cut flowers. Kent is fairly interlined, and the north of London is quite a network of railways. To the west of London they have been somewhat slower in developing, but now that the Metropolitan has an extended service to the Vale of Aylesbury we shall see in the near future market growers springing up in such localities as Wembley, Harrow, Pinner, Northwood, near to the famous "Moor Park," and Rickmansworth, all as yet in a state of virgin purity as far as market growers are concerned.

Growers for market, especially the flower market, should never have

their eyes closed to the emporium. Some flowers do close their petals when the sun departs, just as some servants forget to open their eyes to duty. This is a very important point. No doubt market work is extremely trying to some constitutions in the very busy season. Some cultivators, after being hard at work from early morning, have to set off a long journey to market, where they may reach late in the evening. Then the plants have to be unloaded on to what may be called double-decked trolleys, and the market porters wheel them away to the particular stand which is numbered and rented from year to year. Then when the grower has staged all his plants, his horse cannot stand in street all night, so is taken to some place of bait, while the cultivators snatch an hour or two's rest at some hostelry, and by four o'clock the following morning they must be at their stand in the market ready for the buyers—the best buyers. If by chance the grower or his deputy sleeps on, and does not arrive at the market as soon as it opens for sale, he has a great chance of missing the market, which is tantamount to missing the best prize. Beware of that circumstance, for it is not to the purpose of growing plants to perfection if they cannot be sold to the best advantage.

It is also well for the grower or his salesman to take a cursory glance round the market for the purpose of comparing notes. In March, when a great quantity of *Genistas* make their appearance in the market, unless they be first-class stuff it is no use asking too high a price and sticking to it. Take chances as they come, and endeavour to allow no would-be buyer to go away unsatisfied. In the busy market season the plant salesman has enough to do to watch all points; they have little or no trouble with the best buyers, but experience a deal of what is extremely trying to a similar temperament from the lowest class of buyers, chiefly composed of costers, who have a knack of hanging about, and often drive away good buyers, and if it were not for the important circumstance that they buy largely and chiefly what the best do not want, their presence in the market would be an intolerable nuisance.

THE MARKET.

Covent Garden Market for the sale of plants and cut flowers from time to time has been enlarged to meet the requirements of the trade, and the present season has seen a new market opened purposely for the convenience of the continental cut flower trade which has now become so extensive, contrasting wonderfully with the narrow limits which a few years ago it possessed, when one solitary continental representative brought into market his consignment of cut flowers in a few boxes strapped to his shoulders.

It is predicted that there awaits a bright future for British art in the twentieth century. Vouchsafed commercial prosperity there need be no fear of the decay of British art, nor yet of that which ministers to all artistic efforts, the charm of beauty combined with utility, the resources of Flora.

When we think of flowers, and the part they play in sustaining animated nature, and the pleasure they give to the sick as well as the healthy, there need be no wonder at the vast stride which Flora's universal guests have taken of late years to win popular favour; and that they found favour in the late Duke of Bedford's eye, that does not prove that he had an eye for beauty, or else His Grace would never have sanctioned the erection of such a structure for the sale of continental cut flowers. Let us hope the iron edifice may be only temporary, until such time as a further extension of the present Flower Market may be taken in hand, and so have room under the one roof for foreign as well as home produce in the way of plants and cut flowers. Covent Garden Flower Market opens every Monday, Wednesday, and Friday evening at eight o'clock for the convenience of growers and others who may choose to bring their produce overnight, so as to be ready for market the following morning, when sale begins by five o'clock. But in the busy season, from the beginning of April to the end of June, the Market is open every week day evening, and opens an hour earlier the following morning, and always closes by 9 A.M. Unsold produce may be left without any extra charge beyond the usual Market fee. The Market is open every week day morning for the sale of cut flowers, independent of the busy season.

The market porters are most obliging, and carefully help the growers to stage their plants, and in the busy season the task is far from an easy one. Some hundreds of thousands of plants, in what is technically known as 48's, have to be wheeled in and staged every evening, besides innumerable boxes of seedlings and cuttings of the finer sorts of bedding plants, as well as the commoner varieties of plants, such as Daisies, Pansies, Creeping Jenny, Wallflowers, Sweetwilliams, Gardener's Garters, Old Man, &c., &c., too numerous to mention. Covent Garden Flower Market is a rare sight indeed when all the foregoing plants are present smiling beneath long banks of Roses, Marguerites, Lilies, Geraniums of every hue, with any quantity of Ferns and Palms, dwarf and tall. May is the month to see the wealth of flowers, though a visit to Covent Garden Flower Market at any season of the year, a lover of flowers will be rewarded by excellence of culture and always a good variety of subjects.—A. M.

(To be continued.)

ROUND ABOUT SEVENOAKS.

A DAY in the country; what attraction it has for the jaded Londoner! At the prospect of it a thrill of pleasure runs through his frame similar to that of a weather-beaten sailor at the first sight of his native land. Only to be away from the din and bustle of the City and free to roam

through green fields and shaded woodlands is all that many weary workers desire.

It was with such thoughts as the above that a City scribe wended his way (in spite of the cold east wind) to one of the great railway centres on Bank Holiday with the intention of enjoying a quiet day away from London smoke. Dwellers in the country do not realise what Bank Holiday means to the Londoner, and to see the force of it no better place could be chosen than any of the large railway stations on such a morning.

The eager boisterous crowds jostled pellmell into the carriages, those who could find room sitting and others standing, but all anxious to get away, the stylishly attired City clerk side by side with the coster in the orthodox get-up peculiar to his calling. Bustling railway officials, tired of answering the same repeated questions, are likewise anxious that the crowd should be gone.

Amid lively jokes and peals of laughter, this was at last effected, and in course of time Sevenoaks was reached, on which, with a true horticulturist's nature, thoughts at once turned towards a garden.

To satisfy the ruling passion of most gardeners—viz., visiting gardens and talking over the cultivation of such, Chevening Park, the ancestral home of the Earl of Stanhope was decided on. The mansion is beautifully situated in a vast tract of land from which it takes its name, and surrounded by magnificent specimens of forest timber, with undulating woodland glades forming a charming background to the landscape, and giving the whole a calm and sequestered appearance. Frost has here, like everywhere else, played havoc amongst Conifer, ornamental shrubs and Roses, Laurels and Evergreen Oaks having suffered terribly. In the glass department a high standard of cultivation is everywhere maintained. In the early vinery good bunches of Black Hamburgh, Madresfield Court, and Foster's Seedling were noticed in an early stage of swelling, while a succession house devoted to Muscats showed prospects of a fine crop, the bunches being large and to all appearance setting satisfactorily.

Summer bedding is extensively practised, for which purpose large numbers of Pelargoniums, Begonias, Lobelias, and such-like are annually propagated. Melons, Cucumbers, Tomatoes, Figs, and Strawberries in pots are grown to some extent, and all in good condition, together with decorative flower and foliage plants. Neatness and order prevail in the pleasure grounds and kitchen garden, the latter being large and surrounded by a high wall, against which have been planted young fruit trees, such as Peaches, Nectarines, Plums, Pears, and Cherries, since Mr. Chas. Sutton took charge of the gardens six years ago, in place of worn-out specimens which formerly grew there.

A pleasant feature in the grounds are clumps of Daffodils of the common and more choice varieties, dotted about and flowering profusely on the turf banks, a system of planting which might with advantage be adopted and practised in many gardens. A curious freak of Nature was noticed in the shape of a large clump of giant Horse Chestnut trees, all of which had arisen from one parent by means of the lower branches coming into contact with the earth and naturally layering themselves, rooting and forming a separate tree, which process is still going on, and proving that in time a whole forest might be so formed.

Amid such surroundings a pleasant day passed too quickly away, and as evening advanced steps were again directed towards the station to once more encounter the same crowd, but with what a different aspect! The boisterous laughter of the morning is superseded by tired and weary expressions as the city dwellers journeyed homeward laden with Primroses and other wild flowers to brighten their dwellings, and to be kept as long as possible as a memento of Bank Holiday in the country.—WANDERER.

ROYAL BOTANIC SOCIETY.

APRIL 24TH.

THE second spring show in connection with the above Society was held at Regent's Park on Wednesday. Though the classes in many instances were not well filled, a bright and varied display of bloom was given, many of the exhibits being of high order. The miscellaneous groups, as usual, were large and good, and formed a bright and pleasing feature. We append a list of the prizewinners in the principal classes.

Messrs. Paul & Son, Cheshunt, was a good first for collection of Roses in pots, the plants being large and well clothed with bloom. Amongst other varieties were Céline Forestier, Caroline d'Arden, Mrs. John Laing, Beauty of Waltham, Madame de St. Joseph, Jeannie Dickson, Madame Victor Verdier, Gustave Piganeau, Paul's Carmine Pillar, and Souvenir de S. A. Prince. Mr. W. Rumsey, Waltham Cross, was second with plants not so large as the former, conspicuous amongst them being Chas. Lefebvre, Beauty of Waltham, Magna Charta, and Niphetos.

Mr. T. S. Ware, Tottenham, gained first prize for a collection of hardy herbaceous plants, several of which were very striking. Amongst others were noticed *Arabis albidula*, Pink Mrs. Sinkins, *Adonis vernalis*, *Saxifraga Wallichii*, *Dielytra spectabilis* alba, *Anemone fulgens*, *Spiraea japonica multiflora compacta*, and *Orchis fusca*.

Mr. T. S. Ware was also first for group of Begonias. The plants were sturdy and well grown, the blooms being varied in colour, compact, and of good substance, the chief varieties being Brilliant, Novelty, Perfection, Duke of Teck, Picotee, Murillo, Miss Dora Richardson, Regina, Bexley White, Mrs. F. Fell, Champion, Snowdrift, Princess May, and Arthur Pitts.

Messrs. Paul & Son were first for a group of Amaryllis, the flowers being bright and effective. The second prize fell to Mr. James Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford.

Mr. James Douglas claimed first honours for group of Cinerarias, the plants being large and well clothed with flowers. Amongst others were noticed Purity, C. J. Dowling, Novelty, and Conquest. Mr. J. Douglas was also first for collection of hardy Primulas, amongst which *P. verticillata*, *japonica*, *amoena*, *Auricula*, and *Forbesi*, were all well represented.

The first prize for a group of Pelargoniums fell to Mr. C. Turner, Slough, for well-flowered plants of Spotted Beauty, Rosetta, Kingston Beauty, Buffalo Bill, Mrs. Coombs, Ed. Perkins, Purity, Magpie, Fireball, Prince Henry, Fanny Gair, Empress of India, and others. Mr. Scott was also first for a group of Imantophyllums the plants being large and well flowered.

The first prize for a group of greenhouse Azaleas fell to Mr. W. Barrett, gardener to Mrs. Thompson, The Hoo, Sydenham Hill, the plants being remarkably well bloomed and containing, amongst others, Roi d'Hollande, Dr. Livingstone, Meltoni magnificens, and Model. Mr. R. Scott was second with plants neither so fine or well bloomed as the above.

Mr. Jas. Douglas claimed first honours for group of Auriculas, the plants being compact in form, with flowers of good substance; amongst others were noticed Dean Hole, Rev. Chas. Kingsley, Peri, Frank, Chastity, Chas. Turner, and Dr. Hardy, together with several excellent seedlings. Mr. Chas. Turner was a close second, conspicuous in the group being Charles Perry, Blue Peter, Heroine, Fred. Knighton, Florrie, Elegance, Roland, and others.

Among the miscellaneous exhibits was a fine stand of Roses from Mr. Frank Cant of Colchester, many of the flowers being fine and well formed, the varieties being Catherine Mermet, Général Jacqueminot, The Bride, Niphetos, Ethel Brownlow, and others. Stands were also exhibited by Mr. Geo. Mount, Canterbury, in which The Bride, Catherine Mermet, Niphetos, and Maréchal Niel predominated. Another collection came from Mr. J. Walker, Thame, Oxon, in which Maréchal Niel and Niphetos were conspicuous. Messrs. J. Veitch, Chelsea, sent a small miscellaneous group, amongst others being *Gloneria jasminiflora*, *Epiphyllum Gærtneri*, and *Alyssum saxatile citrinum*.

Mr. W. Barrett staged fine examples of Mignonette in pots. A large and exceedingly diversified collection of cut flowers of Narcissi and Anemones was tastefully arranged by Messrs. Barr & Son, King Street, Covent Garden.

Messrs. Hugh Low & Co., Clapton, staged a fine group of greenhouse plants, amongst which were *Boronia heterophylla*, Rose Crimson Rambler, and *Acacias cordata* and *armata*. A group of Orchids and Cannas was also staged by the same firm, and produced a showy effect, amongst the former being *Cattleyas*, *Cymbidiums*, *Dendrobiums*, and *Odontoglossums*.

A fine group of mixed flowers and foliage plants came from Messrs. J. Laing, Forest Hill, comprised chiefly of *Begonias*, *Carnations*, *Imantophylliums*, *Crotons*, *Caladiums*, and *Palms*.

Messrs. John Peed & Sons, Norwood, staged a bright collection of mixed plants composed chiefly of *Anthuriums*, *Imantophyllams*, *Draenas*, *Caladiums*, and *Palms*. A group of Roses and Azaleas was staged by Mr. P. Perry, gardener to J. C. Tasker, Esq., Middleton Hall, Brentwood.

An excellent group of Cannas was staged by Messrs. Paul & Son, Cheshunt, comprised of Cheshunt Yellow, Progression, Phœbus, and others. Messrs. B. S. Williams & Son, Holloway, staged a group of *Dielytras*, a good collection of Orchids such as *Cattleyas*, *Dendrobiums*, *Cypripediums*, and *Odontoglossums*, together with a number of well-flowered Amaryllis. An effective collection of Narcissi and *Gladioli* was shown by Mr. T. S. Ware, Tottenham, making a very creditable display.

Two excellent fruits of Countess Melon, cut April 16th, were staged by Mr. W. Meads, gardener to A. Henderson, Esq., Buscot Park, Faringdon, Berks.

NATIONAL PRIMULA AND AURICULA SHOW.

SOUTHERN SECTION.

THE annual show of this Society was held at the Drill Hall, Westminster, on the 23rd inst. Taking into consideration the late season the show was in every way a creditable one. The Alpine section of the Auricula was very sparsely filled, but Primulas and Show Auriculas were both good, though the flowers lacked the sparkling lustrousness that is apparent when grown and shown under the most favourable conditions. Mr. T. E. Henwood deserves a word of praise for the admirable manner in which the show was managed.

In the class for twelve distinct Show Auriculas Mr. T. E. Henwood, Reading, was a capital first with well-grown plants of Lancashire Hero, John Simonite, Rev. F. D. Horner, Black Bess (very fine), Acme (good), Prince of Greens, Mrs. Potts (very fine), James Hannaford, Geo. Rudd, Heroine (good), Richard Headley, and Abbé Lizst. The second prize fell to Mr. Sanders, gardener to Viscountess Chewton, Cobham, the varieties being Heroine, George Rudd, Engineer, Abbé Lizst, Acme, George Lightbody, Heatherbell (very good), Black Bess, Lancashire Hero, Mrs. A. Potts, Mrs. Dodwell, and Rev. F. D. Horner. Mr. Patterson, Sunderland was third, and Philip J. Worsley, Esq., Clifton, fourth, amongst whose collection were several pretty seedlings—namely, Little John, Turk's Cap, Merry Monarch, and others.

Mr. Sanders gained first honours for six Auriculas, distinct, the

flowers being good, and the varieties Acme, George Rudd, George Lightbody, Heroine, Mrs. A. Potts, and Rev. F. D. Horner. Mr. Henwood came second, with plants not quite so fine in flower and substance. The third prize was awarded to Mr. Patterson, Sunderland; fourth to J. T. Bennett Poë, Esq., Holmewood, Cheshunt; and the fifth to Philip J. Worsley, Esq., Clifton.

For four distinct Auriculas Mr. J. Sargent was a decided first, with fine plants of Rachel, Acme, Rev. F. D. Horner, and Heroine. Mr. Smith, Bishop's Stortford, was a good second. Mr. Collier, gardener to Miss Kyrke Penson, Durham, third; Mr. Phillips, Bracknell, fourth; Mr. Keen, Southampton, fifth; Mr. Gilbert, Guildford, sixth. For two Auriculas, distinct, the first prize was gained by Mr. Sargent for good plants of L. Hero and Rachel; the second fell to Mr. Smith for Rev. F. D. Horner and Mrs. Potts; third to Mr. Walker, Reading; fourth to Mr. Phillips, Bracknell; fifth, Mr. Collier; and sixth to Mr. Gilbert.

For a single specimen of green-edged Auriculas Mr. James Douglas was first with Abbé Lizst, Mr. Sanders second, Mr. T. E. Henwood third and fourth, Mr. Phillips fifth, Mr. Smith sixth, Mr. Sanders seventh, and Mr. Collier eighth. For one grey-edged specimen Mr. Collier was first with G. Lightbody, J. T. Bennett Poë, Esq., second, Mr. T. E. Henwood third, J. T. Bennett Poë, Esq., fourth, Mr. Patterson, Sunderland, fifth, Mr. Collier sixth, and Mr. Smith seventh and eighth. For the single plants of white-edged varieties, second Mr. James Douglas, third Mr. Walker, fourth Mr. J. Douglas, fifth Mr. Sanders, sixth Mr. Collier, and seventh Mr. Patterson.

Mr. C. Phillips, Bracknell, Berks, was first for single plant of Selfs with Miss Barnett, Mr. Jas. Douglas second, Mr. W. Smith third, Mr. Patterson fourth, Mr. J. Douglas fifth, Mr. T. E. Henwood sixth, Mr. Sanders seventh, and Mr. R. Dean eighth. For seedling Alpine Auricula, with white or cream centre, the first prize was gained by Mr. Sanders, and second by Mr. C. Phillips. For Alpine, with gold centre, Mr. Phillips was granted first and second prizes.

The first prize for fifty Auriculas fell to Mr. Jas. Douglas, the group being composed of well-grown plants of excellent varieties, amongst which were Ariel, Rachel, Elaine, Dr. Hardy, George Rudd, Abbé Lizst, Acme, Fanny Glass, Unique, Sir W. Hewitt, Lancashire Hero, Heatherbell, Rev. Chas. Kingsley (very fine), Sapphire (good), Apollo, Mrs. Moore, Dr. Kidd, Mrs. Potts, Frank, and others. There were also several excellent seedlings included in the group. Mr. Sanders was a good second, conspicuous in the exhibit being Sapphire (very good), Walker, Frank Simonite, Black Bess, William Brockbank, Clipper, and Miss Prim. The third prize fell to the Guildford Hardy Plant Company, Guildford, for a collection of plants not so fine, though containing many good varieties.

Alpine Auriculas were well represented, and in the class for twelve, distinct, Mr. Phillips, Bracknell, was a capital first, his plants being good in substance and of excellent varieties—namely, A. R. Brown Phillips (a very fine variety), Mrs. Martin Smith, Clara, Dragon Fly, Dot, Mrs. Gorton, Little Gem, and Sophie, the remainder being seedlings of fine form and distinct colours. The second prize fell to Mr. James Douglas, whose plants were well grown and the varieties distinct, being comprised of Dean Hole, Chastity, Miss Moon, and Novelty, together with several fine seedlings. Mr. Patterson was third, Mr. Chas. Turner, Slough, fourth, and Mr. Sanders fifth.

Mr. Jas. Douglas was a decided first for six Alpine Auriculas, distinct, the plants being substantial and the flowers large and varied, and comprised of varieties Dean Hole, Novelty, Chas. Turner, Miss Mollie, Miss Moon, and a fine seedling. Mr. Phillips was second, Mr. Chas. Turner third, Mr. Walker fourth, and Mr. Patterson fifth.

For four Alpine Auriculas the first prize was awarded to Mr. Walker, Reading, for good plants of Freda, Mrs. Lawrence, John Lawrence, and John Keen. J. T. Bennett Poë, Esq., was second with plants not so compact as the former; Mr. Keen, Southampton, third; Mr. Fish, Broxbourne, fourth, and Mr. Collier fifth.

For a single Alpine Auricula with gold centre Mr. C. Phillips was first with Dreadnought (a fine variety), and also second with Evelyn Phillips, Mr. Walker being third and fourth. Mr. Chas. Turner was first with single plant of Alpine Auricula with white or cream centre with Winifred, a very distinct variety. Mr. Phillips was second and third, Mr. Walker fourth, and Mr. Collier fifth. In the class for six gold-laced Polyanthus Mr. Weston, Balham, was first; Mr. R. Dean, Ealing, second, and Mr. Jas. Douglas third. For three of the above Mr. Douglas was first, Mr. R. Dean second, Mr. Weston third, and Mr. Sanders fourth.

For twelve Fancy Auriculas the first prize fell to The Guildford Hardy Plant Company, amongst other varieties being Belle, Old Gold, Rolts Green, Khartoum, Innocence, Bronze, and Lalla Rookh. Mr. Jas. Douglas was second, with colours not so great in variety as the former; while Mr. R. Dean claimed third. Mr. R. Dean gained first honours for twelve Fancy Polyanthus, the plants being well bloomed, and of distinct and pleasing colours. Mr. Sanders was second, his plants, though larger, not being so compactly grown as the former. The third prize fell to Mr. Jas. Douglas, and the fourth to Mr. Gilbert.

For twelve single Primroses Mr. R. Dean was again a good first, Mr. Jas. Douglas second, Mr. Sanders third, and Miss Hopkins, Mere, fourth. For six double Primroses in pots the first prize fell to Mr. Jas. Douglas. For twelve hardy Primulas Mr. Douglas was first with well flowered plants of *Primula floribunda*, *verticillata*, *P. Auricula Linnaeus*, *viscosa*, *intermedia*, *rosea*, *cortusoides*, *amoena*, *obconica*, *japonica*, and others. In the class for a group of Primulas and Auriculas arranged in box, the first prize fell to Mr. Jas. Douglas, his exhibit being extremely varied and arranged with charming effect.



FRUIT FORCING.

Vines.—*Early Forced.*—Red spider usually makes its appearance in the earliest house about the time the Grapes ripen, and increases rapidly during the time they are hanging, which is a serious matter to the foliage and succeeding crop. Painting the hot-water pipes with a thin paste of sulphur and skim milk has a deterring effect on the insects, the fumes given off by the sulphur when heated to 170° being fatal to them, and there is no danger to the Grapes providing the coating be thin and the pipes not highly heated. When, however, the hot-water pipes are heated so as to surcharge the atmosphere of the house with sulphurous fumes the skins of the Grapes are more or less prematurely hardened, and in the case of Frontignans and Muscats discoloured and injured. Due supplies of water at the roots and a genial condition of the atmosphere are essential conditions of Vine growth, and as the preservation of the foliage of early forced Vines is an important factor in respect of next year's crop no pains should be spared to keep it healthy. Whatever watering is necessary after the Grapes commence ripening should be supplied in the early part of fine days, so that surplus moisture may pass off before closing time. A light mulch of partially decayed sweet manure will tend to promote root action and the health of the foliage whilst preventing undue evaporation.

Early Grapes do not always colour well, the defect arising from continued hard forcing or overcropping. It is avoided by careful management and judicious apportioning of the crop to the capabilities of the Vines. In cases of overcropping much may be done towards colouring by a supply of dry warm air and a comparatively low night temperature. Where Grapes are fully ripe a reduction in temperature is advisable, but it must not fall below 60° at night, and need not exceed 65° in the daytime by artificial means. Moderate moisture should be maintained for the benefit of the foliage, and will not do any harm to the Grapes provided the air is changed by free ventilation.

Succession Houses.—The work now will be of a routine order, and of this stopping and regulating the growths are important. Where the space is restricted stop the shoots two joints beyond the fruit, and as increase of foliage is desirable, leave the laterals above the bunch, also below when the spurs are a good distance apart, but when close remove the laterals from below the bunch except from the two lowest joints. Pinch the laterals at the first joint, especially those from the basal leaves, also those above the bunch, unless there is space for extending the laterals, when they may be allowed to make two or three leaves, but no more growth should be encouraged than can have exposure to light and air. After the space is fairly furnished keep the growths closely pinched to one joint as made. Where there is more space stopping will not take place until growth has extended four or more joints beyond the fruit. The great evil is overcrowding, which deprives the foliage of light and air, and restricting the growth is intended to avoid that.

Tying the Shoots.—Securing the shoots in the places they are to occupy during the summer demands careful attention. It is a common practice to commence tying down the growths as soon as they are long enough to bend. This is not advisable except as a precaution against injury from frost, as the shoots at this stage are so tender that the slightest twist the wrong way breaks them. It is a better plan to defer tying down until the shoots are less sappy, which may be when the fruit is formed, but a good method is to so dispose the rod that the shoots, instead of being brought down to a nearly horizontal position, will have a good incline upward, yet sufficiently outward or oblique to admit light to the basal leaves of the bearing or spur growths. Always allow sufficient space in the ligatures for the proper development of the shoots.

Vines in Flower.—Midseason Vines, such as Hamburgs, set freely in a comparatively low temperature; but it is advisable to maintain a moderate amount of heat, say 65° to 70°, by artificial means, so as to insure a fairly dry atmosphere with a change of air constantly, as this aids the flowers in throwing off the caps and liberating the pollen. Muscats and other shy-setting varieties should have a circulation of rather dry air, and a temperature of 65° to 70° at night, advancing to 80°, 85°, or 90° from sun heat, raising the points of the bunches to the light, and liberating the pollen at midday by gently rapping the foot-stalks of the bunches. If there be a deficiency of pollen, take it from those varieties that afford it abundantly, such as Black Hamburg and Alicante, and apply it with a camel's-hair brush to the shy-setting kinds, previously removing the caps by lightly brushing over the bunches.

Thinning.—Commence thinning the berries of the free-setting varieties, such as Black Hamburg, directly the setting is effected, as then the fertilised can be distinguished from the small imperfectly impregnated. Some varieties, as Gros Colman, Gros Guillaume, and Trebbiano may be thinned whilst they are flowering, and this is the way to get berries an inch in diameter in the finest possible clusters of even-sized and best berries. Follow up the thinning early and late, and on dull days, never handling the bunches with heated hands nor rubbing them, heedless of the consequences, for every slight injury to the

skin at this time develops into a large blemish later on. Remove surplus bunches unflinchingly, as it is better to under rather than over-crop, and every bunch or berry removed early is to the advantage of those left on the Vine.

Young Vines.—Those planted last year are breaking naturally, and may be assisted with gentle fire heat in cold weather. The canes being depressed to cause them to break regularly down to the basal buds, should be tied in position after the growths have started fairly, otherwise they will acquire a position unsuited for tying down without danger of breakage. If more than one shoot start from a joint remove the smallest, leaving one only, and when the most promising can be decided upon disbud, leaving the best shoots about 18 inches apart on both sides of the canes. Crop permanent Vines lightly, one or two bunches being the maximum, as the better the Vines are established the more satisfactory they will prove in the end. Any extra Vines planted to fruit early and afterwards cut out may each carry six or eight bunches, or even more, according to the vigour of the Vines; but overcropping will certainly prove disastrous to both colour and quality.

Planting Vines.—When Vines are starting into growth naturally is a good time for planting, though some gardeners prefer the late summer after the wood is mature, but whilst the leaves are on the Vines. For very early forcing inside borders are the best, and heated ones desirable for the tender varieties, such as Black Muscat (Muscat Hamburg), Muscat of Alexandria, and Canon Hall, also for Madresfield Court. These splendid Grapes may then be ripened by the end of May or early in June, when they bring good returns. For ordinary purposes the border may be partly within and partly outside, planting the Vines inside the house. The Vines, it is assumed, were cut back in early winter and have been kept in a cool house, the buds now having grown an inch or two long. Turn them out of the pots, remove every particle of soil, carefully preserving the fibres. Spread the roots out straight and flat, the soil of the border having been brought to the required level, covering the roots to a depth of 3 inches, working the soil well amongst them with the hand, and giving a good supply of tepid water, mulching with about an inch thickness of short litter.

If the canes have not been shortened do not cut them now, but pinch the growths at the first leaf from the upper portion down to where fresh growth is desired to issue, and cut away the pinched part when the Vines have made several inches of growth in the desired shoot or shoots, as then there is no danger of bleeding, and the extra leafage will favour root formation. Sprinkle the house and Vines twice a day, and if the weather be bright and the panes of glass large, shade lightly from 10 A.M. to 2 P.M., when the house should be closed, damping all available surfaces. Temperature 55° at night, 65° by day artificially, and 70° to 75° with sun, running up to 85°. When the Vines start into growth give every encouragement, increasing the temperature to from 60° to 65° at night, 70° to 75° by day, and 80° to 85° or 90° from sun heat. Avoid forcing treatment at the beginning, it only causing growth at the expense of stored matter, and induces thin foliage, incapable of full elaboratory functions.

Cherry House.—When the stoning is completed the fruit commences colouring and swelling for ripening. The temperature may then be raised, but not exceeding 65° by artificial means in the daytime and 55° to 60° at night, with a little ventilation, increasing it at 70°; but the temperature must not be allowed to exceed that degree in the early part of the day without full ventilation. From the commencement of colouring until the trees are cleared of their fruit syringing must cease, or the fruit will crack, but a good moisture should be maintained in the house by keeping the surface of the borders moist, or if the trees are in pots damping the floor two or three times a day, avoiding, however, a stagnant atmosphere. The border should not lack moisture, trees in pots being well watered. Aphides must be kept under, fumigation or vapouring being the only safe process after the fruit commences ripening.

Cucumbers.—Fruit is now abundant and cheap, the plants despite the severe weather having made good progress. Attend to tying the shoots, stopping at one or two joints beyond the fruit, removing bad leaves and exhausted growths so as to maintain a succession of bearing wood. Water plants in houses abundantly, and with weak liquid manure about twice a week, syringing the foliage and walls daily about 3.30 P.M., when the house can be closed. Preserve a night temperature of 65° to 70°, 70° to 75° by day artificially, 80° to 85° or 90° from sun heat, ventilating from 75°, being careful to avoid cold currents, and close sufficiently early to run up to 90°, 95°, or even 100°, with abundance of atmospheric moisture in the house. Sprinkle available surfaces occasionally in the evening with liquid manure, or a little sweetened horse dung on the surface of the bed will supply ammonia to the atmosphere, nutriment to the soil, and encourage surface roots.

Pits and Frames.—Plant in these will hardly need shading as yet, but the foliage must not be allowed to flag. Use tepid water through a fine-rose watering-pot at about 3 P.M. over the foliage, a light sprinkling sufficing, closing the lights at the same time, but as the nights are as yet cold be careful that the foliage becomes dry before night. Close early and employ a thick night covering. Maintain a good bottom heat by linings, renewing them as necessary. Pot or sow ridge varieties if not already done, keeping these and other young plants near the glass.

Melons.—As the fruits of the earliest plants increase in size the supports must be lowered or otherwise adjusted. Stop the laterals frequently, or thin them where they are crowded. Supply water or liquid manure liberally to plants on which the fruits are growing rapidly, but avoid excess of either, especially liquid manure, which may

injure the roots, and the fruit in consequence will not finish satisfactorily. Plants coming into flower should only have sufficient water to prevent flagging, and a drier condition of the atmosphere is essential to a good set, especially in the case of very vigorous plants. Attend regularly to the setting of the blossoms, and stop the shoots one joint beyond the fruit when impregnated, removing all superfluous growths after the fruit is set. Avoid giving stimulants to plants until the fruit is swelling, when liquid manure may be applied liberally, especially to plants carrying heavy crops, continuing the supplies until they are well advanced towards ripening. Maintain a night temperature of 70°, 70° to 75° by day, and 80° to 90° with sun heat, closing early, when the plants may be syringed, except when in flower and the fruit ripening. If canker appears rub quicklime into the affected parts.

THE KITCHEN GARDEN.

Kidney Beans.—There will be no falling off in the demand for these during the next two months. Deep narrow boxes holding a single row of plants are preferable to pots at this time of the year, the plants remaining in a healthy productive state far the longest in the former. In any case they must be kept well supplied with water and liquid manure. Those planted out between rows of Tomato plants will soon be yielding heavy crops, and newly planted vineries might be similarly utilised. According as pits or frames are cleared of early Potatoes, plant with Kidney Beans, having these in small pots in readiness for the positions. All the preparation needed is the removal of rubbish, a levelling over, and a thorough soaking of water if at all dry. Put the plants out 4 inches apart in rows not less than 15 inches asunder. Stake at once and mulch with short manure. Keep well supplied with moisture, and shade lightly during the hottest part of the day, especially if fire heat is used and a high temperature maintained.

Kidney Beans in the Open.—If raised in the open somewhat early, protection of some kind should be provided. Hand-lights will not be liberated from Cauliflowers so early as usual, but directly they are available their destination ought to be a warm border where they can be filled with Kidney Beans out of small pots. Sion House and Ne Plus Ultra are good early varieties, and these may now be sown on a warm border thinly in drills 15 to 18 inches apart. Canadian Wonder is good for affording a succession.

Beet.—The improved form of Turnip-rooted is the best for an early crop, medium-sized roots proving tender and well coloured. Moderately firm ground favours early "bulbing." Seeing that they will not be long on the ground they may be planted 5 inches asunder in rows 1 foot or rather less apart. Seeds of the Turnip-rooted may be sown on a warm border or with the main crop quite in the open. The main crop of the long-rooted varieties should now be sown, and on ground manured for a previous crop. The rows of the neat growing Dell's Crimson or forms of the latter may be 12 inches apart, stronger growers being allowed another 3 inches.

Carrots.—Coarseness is also objectionable in the case of Carrots. If the main crop varieties are sown much before the end of April the roots are liable to become too large, also splitting and keeping badly. This crop, again, should be grown without the aid of fresh or solid manure. The cleanest and best roots are produced in free working, sandy soils, but very good ones can also be had from comparatively heavy ground. Nantes Horn and The Guerande are suitable for present sowing. The rows of these may be arranged 9 inches apart, but the Intermediate and Long Surrey should have more space. Dust wood ashes lightly along the drills prior to covering the seeds, by way of a preventive of grub attack.

Chicory.—Not nearly enough of this is grown for winter use. It should be remembered that the blanched tops are not only good in a salad, but also cooked and served as a vegetable. Either Improved Large-rooted or Large Brussels (Witloef) or both may be sown now thinly in drills 12 inches apart. Large straight roots are most desirable, therefore sow on ground prepared as for Carrots, and let the thinning be well attended to.

Salsafy and Scorzonera.—Owing to a lack of variety during the past winter these vegetables have been used up more closely than is often the case. Long, straight, moderately stout roots are most desirable, and the seeds should, therefore, be sown on ground free of strong, solid manure, and in a finely divided state. Early raised plants are apt to run to seed, but there will be but few "bolters" if the seeds are sown now. The drills may be drawn 12 inches apart, and the seeds sown thinly.

Borecole.—Most of the species require a rather long period of growth, or otherwise they fail to attain their most productive hardy state. If the plants are large enough for pricking out they will be none too early, providing the ground is ready for their reception. Owners, or those in charge of small gardens, may yet plant Ashleaf or other early maturing short-topped Potatoes in rows 3 feet apart, planting Borecole and Brussels Sprouts in the furrows after moulding-up the Potatoes. Read's Hearting and Tall Green Curled are good, but scarcely so hardy as Sutton's Arctic Kales (purple and green), and these, with the very hardy Cottager's and Asparagus Kale, may yet be sown in the open with every likelihood of good results.

Broccoli.—Only Veitch's Autumn Protecting should be raised early, especially if the ground cannot be reserved for these crops. By sowing now thinly in the open the plants will be ready as soon as crops that are preceding them can be cleared off. Snow's Winter White ought never to be sown earlier than this. Veitch's Early White forms a good succession to the latter. Leamington, Knight's Protecting, Carter's Universal, Model, and Late Queen are all excellent and reliable. The

white and purple sprouting forms ought to be treated similarly to Borecole.

Chou de Burghley.—Now is the best time to sow this form of Cabbage. Raised earlier and planted on strong ground objectionable coarseness is unavoidable.

Savoy Cabbage.—These, again, are of little value when either very early or coarse. If Tom Thumb, Early Dwarf Ulm, Dwarf Green Curled, and Drumhead are sown now thinly and quite in the open, abundance of plants ought to be available for succeeding early vegetables.

Birds versus Seeds.—In some gardens seeds are much preyed on by chaffinches and other small birds. If they cannot be kept off by means of lines of black thread crossing and recrossing each other, or benders and doubled fish nets, or pea stakes laid thickly over the beds, the plan of red-leading the seeds should be adopted. Not many seeds will be drawn out of the ground when it is seen they are coated with red lead. Seeds moistened in a damp cloth will not clog together, and well rolled in red lead the latter will adhere freely to it. Red lead will not affect the germinating power of the seeds.

THE BEE-KEEPER.

APIARIAN NOTES.

SINCE the 17th inst. the frost has disappeared, and more genial weather reigns in the north. It is not, however, strictly speaking, bee weather, as many busy workers are chilled when out foraging. The bee-keeper must, therefore, keep a watch over his stocks to maintain them in a breeding state, as stoppage to that at this season means no profit. Embrace the first opportunity as circumstances arise to raise young queens to supersede effete ones.

VARIETIES OF BEES.

Are we advancing or retrograding? The above question is put with the view of encouraging inexperienced bee-keepers to put to test amongst other things the varieties of bees, and prove for themselves which are the best for their positions and surroundings. I am one of those old apiarians who believe the old black or British bee is no longer to be found pure in the British Isles, consequently a fair trial with the different breeds cannot be made. It is true that some persons think they have the original natives; at least, as one writer says, "they are as near blacks as need be." Crosses are always good honey gatherers, and but for foreign bees there would have been no crosses.

When I started in 1863 with the pure Italian Alp bee, I soon learned if honey was to be expected from them much larger hives must be used, and this applies to every foreign breed imported. The autumn months of 1863 and 1864 were exceptionally fine, as well as the aftermath of red Clover, which both Italians and blacks frequented, but while the Italians made weight from it and other autumn flowers, the blacks made no weight. As years advanced, we had evidence, both at home and at the moors, that the introduction of the Italian Alp bee was a happy hit.—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES.

THE favourable change in the weather that has taken place during the past fortnight has been beneficial to the bees, and it is interesting to bee-keepers to note the many varieties of flowers that are now in bloom. Although this is a backward spring there is no lack of pollen-producing flowers, and doubtless a little honey is also obtained. The only fruit trees at present in bloom are the Apricot and Gooseberry. The former, thanks in a great measure to the bees, are setting their fruit freely, and as they are much later than usual in opening there is every prospect of a heavy crop of fruit, although the trees are not protected in any way.

Previous to keeping bees somewhat extensively we were in the habit of covering the trees with canvas blinds every night, and on more than one occasion failed to obtain a crop of fruit. Assuming that spring frost was the cause, but since discarding the covers and leaving the trees fully exposed to all weathers, there has been only one partial failure, and that was last year, when the severe frost on the 21st of May blackened all the fruit on the projecting spurs, although they were as large as horse beans. Those on the young growths that were laid in close to the wall escaped, and we were eventually rewarded with upwards of 100 dozen of superior fruit.

Every gardener should keep a stock or two of bees, if only for the fertilisation of fruit. I do not say in that case he would always command good crops, as it is well known to all observers that trees when exposed without some protection will always suffer from late spring frosts. But is not the frost sometimes blamed

instead of the true cause, defective fertilisation? I am, after many years' experience, convinced in my own mind that such is the case, as by observing fruit trees only a few miles away that were quite barren of fruit, and noting that no bees were kept in the immediate neighbourhood, whereas in another district not far distant where bees were plentiful there were good crops of fruit.

At this time of the year tens of thousands of bees are on the wing, not a flower will escape the busy worker. To illustrate how industrious bees are, I have only to mention a field of Beans; no matter how large, every flower will be found on examination to be fertilised, either by the humble bee or the hive or honey bee; and as their proboscis is not long enough to reach to the bottom of the tube of flower if they attempted to reach it from the entrance to the open flower, instead of wasting their time in a fruitless occupation they bore a hole from the outside at the bottom of the flower. By this means they obtain the nectar, and the bloom is fertilised.

The humble bee used to have the credit of boring the hole, and the honey bee followed after and extracted the honey. I think, however, the honey bee is quite capable of doing the whole of the work, and on examining a large field of Beans not a flower will be found to have escaped. Were they not fertilised in this manner the crop would result in failure, as the Beans would not set. Bees will travel a long distance to a field of Beans, as they come into bloom just before the white Clover, and when flowers are rather scarce one comes to the conclusion that if there were more gardener bee-keepers no harm would be done, but probably a great amount of good.

This must be my apology for approaching the subject in these notes. The majority of employers would allow bees to be kept in their gardens, and by using the modern frame hive they are ornamental as well as useful, and are easy to manipulate. No one need have any fear of handling bees. I recommend our native black or brown bee in preference to all others, as hybrids are vindictive. Anyone who is at all nervous should, until experience is gained in handling them, be protected with gloves as well as a veil, but after a little practice the gloves in the majority of cases will be discarded, and much pleasure be derived from the busy workers, and as bee-keeping can be commenced with a small outlay the majority of gardeners may indulge in it.—AN ENGLISH BEE-KEEPER.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Vine Growths Deformed (*D. and W. B.*).—The laterals appear as if, in part at least, affected with the "browning" disease; but they need careful microscopical examination, which they shall receive, and the results will be published in a future issue.

Inarching Vines (*S. W.*).—In all probability the Black Hamburgh will grow and fruit well on the Trebbiano stock under the usual good cultural attention. We do not anticipate that the stock will materially influence either the colour or quality of the Grapes, but this can only be determined by experience, as sometimes the unexpected happens in such cases.

Freesias from Seeds (*Freesia*).—Thin the seedlings to about five in a 4-inch pot. Avoid putting the seedlings in a draughty frame or house, as that is most injurious. Keep the young plants in a cool temperature and close to the glass. If the seedlings thrive and become sturdy plants with the pots full of roots, give them a little weak liquid manure, which will help them on, and they should bloom in July or August. Seedling Freesias will not always bloom the first year, but will make good flowering bulbs for the following season. Had you given particulars as to where the seeds were sown and the treatment they had received we could, perhaps, have given a more explicit and useful reply.

Chickweed (*Sympathy*).—What you send is a good sample of the plant you desire to try medicinally. We hope it will do good, and it is at least harmless; indeed, it is stated by a good authority that the young shoots and leaves when boiled can scarcely be distinguished from Spinach, and are equally wholesome. The botanical name of the Chickweed is *Stellaria media*.

Mildew on Roses (*Nemo*).—For mildew on Roses a good plan is to syringe with a solution of sulphur and water, a 3-inch potful of the former to three gallons of the latter. The sulphur should be first mixed with a little water into a paste, and then the remainder added. The sulphur may remain on the Roses three or four days and then be washed off. Cold draughts and dryness at the root will cause mildew, and nothing will keep the plants free for long if these important matters are not carefully attended to.

Weevils on Ferns (*B. W.*).—The enemy which is making such havoc with your Ferns is the very destructive weevil, *Curculio*, or *Otiorhynchus sulcatus*. These beetle-like pests will eat almost anything, and are by no means easy to eradicate. In the grub state they feed on the roots of plants, and when developed devour the leaves and flowers. Search for them sedulously, especially at night, catching all you can, and so prevent a further increase. Shaking the plants violently over a white cloth at night will dislodge many, and they will be visible on the white surface, and can be the more readily secured. A bitter decoction of aloes, quassia, and tobacco is said to render plants distasteful to the weevils. Early in the spring as much of the old soil should be removed from the Ferns and other plants as can be safely done, and probably many small white grubs, the larvæ of the weevils, will be destroyed. Keep the soil moist, and a solution of hellebore, made by pouring boiling water on 2 ozs. of the powder, then increasing to a gallon of water before using, might do good. It will not injure foliage or roots.

Gladioli Diseased (*A Gladiolus Lover*).—The "grass" certainly presented the appearance of injury from a noxious atmosphere, but on a close examination it was manifest that the epidermis and underlying tissues were not damaged by such means, they being quite normal, yet dry and robbed of nourishment. The stems also were quite healthy—that is, normal, but impoverished and dried as grass is from the tips of the blades downwards during droughty weather. On examining the corms we came across the cause of the mischief—mites, invisible to the unaided eye, and just discernible by the ordinary pocket magnifier with a power of from three to six diameters as a moving roundish, semi-transparent yellowish white body. This insect (so called) swarmed on the old corm, literally eating it away, and preventing the ascent of the nutriment imbibed by the roots, and thus the "grass" became brown, dried, and withered, the sap being intercepted and appropriated by the mites. It is a very common British species, a near ally of the more common cheese and flour mite (*Tyroglyphus siro*, *Linn.*, *Latr.*). It, however, belongs to a different genus—namely, *Rhizoglyphus echinopus* (*Hypopus dujardini*, *Clap.*). It is very common on Hyacinth bulbs, and a very nasty creature to get on the person, causing much irritation and even suppuration from the skin being rubbed where it has been, as we know from personal experience, and are loth to examine such specimens microscopically, as it means much discomfort. The best thing to do is to burn the plants and soil, turning them out of the pots and placing all in the fire, then steep the pots in hot water. The plants are too far gone to admit of recuperation; but if you wish to preserve them water with a solution of corrosive sublimate (a terrible poison, so corrosive that it must not be handled in the pure state), $\frac{1}{4}$ oz. to a 4-gallon bucketful of water, using so that the soil and, of course, the corms of the Gladioli, be thoroughly wetted. We ask you to be very careful with this solution, as it will kill all forms of animal life, from worms up to man, that partake of it, even low forms of vegetation, such as fungi; but at the strength named it is not injurious to the higher plants, from Ferns (inclusive) upwards, when applied to the roots, whilst many will bear it on the foliage at half strength. But whilst it will kill insects it is fatal to all birds and animals that partake of such insects; hence it is a very undesirable remedy.

Tomato Leaves Diseased (*Cross*).—The Tomato leaves are infested by the drooping disease-producing parasite (*Plasmodiophora tomatis*), a so-called slime-fungus, which is frequently accompanied, or rather followed, by *Bacterium Halstedii*, especially when the stems of the plants are attacked, then the whole plant suddenly collapses; but when the leaves, which are marked by yellow spots turn brown, the ends or tips turn black and droop, hence the term "drooping" disease. There are also sometimes, and the mycelium appears in your case, presence of a fungus proper—namely, *Macrosporium Solani*—which alone or in conjunction with the *Plasmodiophora* may cause the foliage to wilt and hang down in a discoloured mass, whilst the fungus produces its spores from the stouter parts, which turn brown in large blotches. All the parasites are introduced with the soil, and the only remedy so far as known is corrosive sublimate solution, 1 oz. to 15 gallons of water, giving the soil an ordinary watering so as to moisten it evenly. This will not injure the plants in the least, whilst it will destroy all animal life, including eelworms and low forms of vegetation. Unfortunately it is a virulent poison, but after many experiments we have found it the only certain preventive. Lime is nearly as effective as the corrosive sublimate, and being perfectly safe under any and all circumstances, we strongly advise its use in preference to the mercurial chloride solution. A peck to half a bushel of quicklime may be used per rod, and with it top-dressings of farmyard or other solid manure may be given with

perfect safety, provided a little quicklime is mixed with it, say one-tenth. This will act so that nitrate of lime will be formed, and few, if any, parasites can withstand this combination, whilst the plants profit to the fullest extent. We should use the proposed mulch, sprinkling a good handful of basic slag phosphate on the manure per square yard, which will give the lime (50 per cent.) and essential phosphoric acid and iron. Besides this, you may cut off the infested leaves and burn them, then dust the plants from the soil to the tips of the growths (every part) with air-slaked lime, passing through a hair sieve, then add 1 per cent. of carbonate of copper (precipitated), mixing thoroughly and passing through the hair sieve a time or two to insure thorough mixture. The 1 per cent. means 1 oz. carbonate of copper, perfectly dry, to 100 ozs. of air-slaked lime, quite dry and floury. Apply with a bellows. With this at the tops and corrosive sublimate solution in the soil Tomato growers may largely protect their plants from animal and vegetable parasites, conditional on the practice of sound cultural management.

Potato Set Diseased (R. H. K.).—The discolouration in the set is caused by the action of the mycelium of the Potato curl fungus, which was first discovered in England in 1764, and soon afterwards was noticed in Rhenish Germany and elsewhere. It was very hurtful to Potato crops in this country at the beginning of the present century, but has been less so since 1820. Hollier and Reinke found the mycelium in the tissues, not of the tubers, but of affected plants, and agreed that the disease is hereditary, or that diseased tubers produced diseased plants. Without entering on a description of the fungus, we may say that it is, as seen in the tuber before us, a stage in the development of the Potato curl fungus (*Pleospora polytricha*) which may or may not develop on Potato plants, but it is common enough on many others in the mature form as *Pleospora herbarum*. The diseased tuber first gives rise to the fungus that caused the sudden collapse of Potato tops in many places in this country in 1894, and was noticed and figured in this Journal, the first indication being a curled plant here and there about earthing-up time, and later by the collapse of the tops generally, without any manifest infection of the tubers; but some afterwards become affected, no doubt by spores washed into the soil. Infected sets such as the one before us seldom produce tubers, or if any form they remain very small, for the vitality of the plant is used up in producing the fungus. The spores are spread far and wide, giving rise to the Potato top disease—the *Macrosporium Solani* again—which is carried over from year to year in the tubers. Steeping the sets in corrosive sublimate solution is the only known preventive of curl, only the Potatoes being dressed that are required for setting, as the tubers so treated are poisonous to animals and man. The sets should be steeped in the corrosive sublimate solution about an hour and a half. This may be conveniently done by placing them in coarse sacks. The corrosive sublimate (Mercuric bichloride) should be prepared in an old wooden tub, but sound, not using metal vessels, first dissolving the chemical, which should be finely powdered, using 1 oz. to 1 gallon of hot water, allowing this to stand overnight, then place in the tub intended for dipping the Potatoes $6\frac{1}{2}$ gallons of water, and pour in the 1 gallon solution. Allow this to stand in the tub four to six hours, agitating frequently during that time to insure equality of solution before using. This solution is equally efficacious in preventing the scab fungus (*Oospora scabies*).

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*W. P. B.*)—1, Either *Abies Albertiana* or a very fine growth of *A. canadensis*, probably the latter; 2, *Diplopappus myrsophylla*; 3, Possibly a *Rhamnus*, species undeterminable. (*M. A. R.*)—1, *Omphalodes verna*; 2, *Hepatica angulosa*; 3, *Scilla bifolia*; 4, *Saxifraga (Megasea) crassifolia*; 5, *Primula rosea*. (*Amateur Orchidist*).—1, *Dendrobium Wardianum*; 2, *Lycaste Skinneri*; 3, Poor form of *Odontoglossum Pescatorei*; 4, *Cattleya Percivaliana*; 5, *Sophranitis grandiflora*; 6, *Angræcum sesquipedale*. (*B. W.*)—*Cattleya Trianae delicata*. (*O. N. C.*)—1, *Dendrobium fimbriatum oculatum*; 2, *Odontoglossum Rossi majus*. (*Daffodil*).—*Narcissi* are florists' flowers that can only be named by comparison. (*Caterham*).—2, *Maxillaria tenuifolia*; 3, *Dendrobium moschatum*. (*J. B.*)—1, *Scutellaria Mociniana*; 2, *Saxifraga (Megasea) crassifolia*; 3, a *Doronicum*, possibly *caucasicum*. (*J. W.*)—1, Send particulars as to where found, and we may be able to identify, though the specimen is in such a bad state; 2, *Fuchsia procumbens*. (*East Grinstead*).—1, *Cœlogyne pandurata*; 2, *Vanda suavis*.

COVENT GARDEN MARKET.—APRIL 24TH.

OLD Grapes are now finished, new ones taking their place. Heavy supplies of Cucumbers and Strawberries, prices seriously affected by the holidays.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per half sieve ..	1	6 to 4	6	Grapes, per lb.	1 6 to 5 0
„ Nova Scotia, per barrel..	10	0	21 0	Lemons, case	10 0 15 0
Cobs, per 100 lbs. ..	13	0	0 0	St. Michael Pines, each ..	2 0 6 0
				Strawberries, per lb. ..	1 0 5 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb. ..	1	6	to	2	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	0	Onions, bushel	3	6	4	0	
Carrots, bunch	0	3	0	4	Parsley, dozen bunches ..	2	0	3	0		
Cauliflowers, dozen ..	3	0	6	0	Parsnips, dozen	1	0	0	6		
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0	4	0		
Coleworts, dozen bunches	2	0	4	0	Salsafy, bundle	1	0	1	5		
Cucumbers, dozen	1	6	3	6	Seakale, per basket	1	6	2	3		
Endive, dozen	1	3	1	6	Scorzoneria, bundle	1	6	0	0		
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0		
Leeks, bunch	0	2	0	0	Spinach, bushel	0	0	0	0		
Lettuce, dozen	0	9	1	0	Tomatoes, per lb.	0	6	1	0		
Mushrooms, punnet ..	0	9	1	0	Turnips, bunch	0	3	0	4		

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	3	0	to	4	0	Roses (indoor), dozen ..	0	6	to	1	0
Azalea, dozen sprays ..	0	6	1	0	0	Tea, white, dozen ..	1	6	2	6	
Asparagus Fern, per bunch	2	0	3	0	0	" Yellow, dozen	2	0	3	0	
Bouvardias, bunch	0	6	1	0	0	" Safrano (English),					
Carnations, 12 blooms ..	2	0	3	0	0	dozen..	2	0	3	0	
Daffodils, (dbl.), doz. bchs.	2	6	3	0	0	" (French), yellow, doz.					
" (single), doz. bchs.	3	0	4	0	0	blooms	1	6	2	0	
Eucharis, dozen	4	0	6	0	0	" (French), Red, dozen					
Gardenias, dozen	3	0	4	0	0	blooms	2	0	2	6	
Geranium, scarlet, doz.						Smilax, per bunch	4	0	6	0	
bunches	6	0	9	0	0	Tuberose, 12 blooms ..	0	4	0	6	
Lilac (French) per bunch	5	0	6	0	0	Violets (English), dozen					
Lilium longiflorum, dozen	4	0	6	0	0	bunches	1	6	2	6	
Marguerites, 12 bunches ..	1	6	3	0	0	Violets (French), Parme,					
Maidenhair Fern, dozen						per bunch	2	6	3	6	
bunches	6	0	8	0	0	Violets (French), Ozar, per					
Orchids, dozen blooms ..	1	6	12	0	0	bunch	2	0	4	0	
Pelargoniums, 12 bunches	6	0	9	0	0	Violets (French), Victoria,					
Primula (double), dozen						dozen bunches..	2	6	4	0	
sprays	0	6	1	0	0						

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (golden) dozen	6	0	to 12	0	Ferns (small) per hundred	4	0	to 6	0
Aspidistra, dozen	18	0	36	0	Ficus elastica, each	1	0	7	0
Aspidistra, specimen plant	5	0	10	6	Foliage plants, var., each	2	0	10	0
Azaleas, each	3	6	4	0	Genistas, per dozen	8	0	10	0
Cinerarias, per doz.	8	0	10	0	Hyacinths, dozen	9	0	12	0
Cyclamen, dozen	9	0	12	0	Lycopodiums, dozen	3	0	4	0
Dracæna, various, dozen ..	12	0	30	0	Marguerite Daisy, dozen ..	8	0	10	0
Dracæna viridis, dozen ..	9	0	13	0	Myrtles, dozen	6	0	9	0
Erica, various, dozen	9	0	18	0	Palms, in var., each	1	0	15	0
Euonymus, var., dozen ..	6	0	18	0	„ (specimens)	21	0	63	0
Evergreens, in var., dozen	6	0	24	0	Primulas, dozen	4	0	6	0
Ferns in variety, dozen ..	4	0	18	0					



MANGOLDS.

REPEATEDLY in our Home Farm articles have we called attention to the exceptional value of a few acres of arable land to dairy farmers, as affording them the means of providing themselves with roots and certain other crops, but roots especially for their live stock in the winter and early spring. We know some farmers who appear to have just the right proportion of their holding in plough for this purpose, and who manage it to perfection; but, then, these are men of mark—intelligent, thoughtful, energetic, and so sensible that there is no hesitation in asking for advice in any new departure, any point of practice not quite clear to them, or in which they think improvement possible.

In the main they are invariably successful—are prosperous men, and their prosperity is owing in no small degree to a liberal but judicious expenditure on manure, seeds, and labour. On the other hand, by far the greater number of dairy farmers will have nothing to do with arable land, on the plea that they have neither implements or horses to work it, and that they should have to rob the pastures of manure, for which they have not half enough as it is. They admit that Mangolds are so useful that they buy some most winters, often having to cart them from farms a considerable distance away, to say nothing of Oat straw obtained in the same costly manner. As to chemical manure, that is too expensive! This is no fanciful statement, but is well within both our past and present experience. We are just—as we write—sowing some late Lent corn on arable land, which has been on offer to several grass farmers whose holdings

lie near to it, and to whom it ought to have been a boon most precious, a rare chance to have been seized with avidity.

As a crop for cleaning land Mangold has a special value. It can be sown successfully either in April or May, the manure is kept close to the plant, and by having the rows 30 inches apart, or even more for very foul land, if frequent and prolonged horse hoeing is possible. We thus obtain a useful crop of roots for the winter, get the land clean and ready for a corn crop, or for laying down to temporary pasture with a crop of winter Oats. If this be our aim, then a special effort must be made to get the Mangolds off the land early in the autumn, and also to sow as early as possible in April. Quick growth and early maturity being then of more than usual importance, there should be at least one dressing of nitrate of soda immediately after the singling of the plants.

We mention winter Oats in connection with this root crop because wherever it is possible to grow Mangolds winter Oats ought to answer. It is quite possible winter Oats may be an unknown quantity in the farming economy of localities where our readers may wish to try them. Any mention of such Oats to local farmers will probably induce them to say they never heard of them, and do not believe they will answer. A few years ago this actually happened to a gentleman who, acting under our advice, introduced them as a novelty on his home farm. He was rewarded by a fine crop, which we saw, and with which he was much pleased, as he found both corn and straw had a special value.

In storing Mangolds make and keep a firm resolution that the storing shall be so thorough that one may be certain the roots are safe from frost, however severe. Having regard to the value of straw and litter of all kinds, a frost-proof root hovel should be regarded as an indispensable adjunct to the homestead. To anyone doubtful of the necessity of this we commend a fair calculation of the annual cost of ordinary clamping in litter and labour. With one or more suitable hovels it is a mere matter of carting, which has to be done in any case.

Mangolds are richer in sugar, starch, and albuminous compounds than Swedes, but rather more care is required in using them, because when lifted they are pungent and relaxing. It is for this reason that they do not come into use much before Christmas. Often has this holding over till the New Year of a big store of Mangolds proved of immense benefit to the live stock, affording it a grand addition to the dietary at midwinter onwards till May day. Passed through a mincing machine and mixed with straw chaff it is then palatable, nutritious, and safe food. This is the East Anglian method for all stock except sheep. Whole roots may safely be given to young or full-mouthed sheep, but for older sheep with broken teeth they should always be minced so as to avoid risk of loss from choking.

WORK ON THE HOME FARM.

Spring chickens are backward and scarce owing to the long late winter, early broods having suffered severely where the ordinary rough and ready practice prevails. When the cold weather did go, the only thing to do was to set as many hens as possible; this proved a slow affair, so few hens being "broody." Incubators and foster mothers have consequently proved of exceptional value in the preparation of numbers of chicks for the milder weather. Happy is the home farmer having such modern appliances; without them there must be difficulties about early chicks.

See that now and onwards abundance of chickens are reared for the selection of pullets for autumn and winter eggs. It is entirely a question of numbers, successional broods, healthy birds, and eventually winter management. Given birds of the right age this is easy enough; and, remember, the home farmer must keep up a full supply of new laid eggs the year round, simply because it is known to be possible. In this matter look to breeds. Place no reliance upon so-called everlasting layers for winter eggs, or they will fail you. Dorkings, Orpingtons, Leghorns, Anconas, Minorcas, and Andalusians are all good layers. We rather cling to the first mentioned, because of its excellence for table poultry when crossed with the old Game.

When to sow the first Swedes is often a debateable matter. We keep to the Norfolk custom of sowing early in May, because we have found

that the risk of mildew is not of serious moment. A first sowing of white Turnips can also be made now, to be followed by other sowings in June and July. The drilling of early Cabbage, Drumheads, and Thousand-head Kale is also in hand for autumn and early winter use. It is good practice to have these green crops drilled early, singled, and well established before there is much risk of hot dry weather.

Spring corn sowing should now be finished without the loss of a day, or the crop will be light and so late in ripening that harvesting may be difficult. It is only in emergencies that very late corn sowing should be done at all, and then we prefer Oats as about the only safe late crop.

SORTING POTATOES.

A LONG bitter winter, with frosts so keen as to be almost unknown in these latitudes, then early spring days, with saturated fields and leaden skies, whose downpour only ceased for a few hours at a time, are circumstances which have led to great backwardness in all work appertaining to the farm. Now all is hurry and bustle, so much to do, so little time in which to do it. Dry winds have made the land workable, and the work on a mixed farm is something to see to believe. If the work of three months is to be crowded into one, either there must be a large importation of outside labour or means must be found for facilitating operations. The most tedious work here is Potato sorting, and hands are few. It was therefore with great interest this week the trial of a Potato sorter was watched. The variety was "Garton," the destination Covent Garden; the sample therefore must be first rate. Also the fact that Garton seeds are of value this year, made it desirable to take as much out as possible. Like all great inventions the scheme seems simple enough when seen. Three riddles, one above the other, with three separate exits. An old man and boy fill what for want of a better term may be called the hopper. A very old man turns a handle, which gently shakes the three riddles from side to side. At the principal output stand three women, who watch and remove any diseased or large ugly growths (you see the machine is but a machine, and cannot discriminate between quantity and quality). Another woman is carrying off seeds, and the third opening shoots out small rubbish. The action is so gentle that there is no unnecessary bruising or rubbing, and the turn-out is a ton per hour. Of course the work could be much quicker, but then possibly Potatoes would escape the eyes of the watchers, and spoil a first-rate sample. Then, too, a hindrance at this time of year is the excessive growth. The riddles must be removed, and the mass of shoots and rootlets cleared off. Unmistakeably this will be of great assistance to Potato growers, and has only to be known to be appreciated.

A remote village on the Trent is the home of this invention, and doubtless the name of that village will become a "household word." Talking of "pies," this Garton pie made north and south has entirely escaped all ill effects from frost. Possibly, some on-lookers might wonder at the immense heap of straw and earth which has been removed, and might with reason calculate the expense had been great; but the vexation would have been greater still had the uncovering revealed a mass of decayed, putrefying tubers. The Swede pies here, which were only treated to ordinary coverings, have had a pitiful tale to tell. Labour there had indeed been expended in vain, for the pied roots were far worse than those in the open field.—THE MISSUS.

METEOROLOGICAL OBSERVATIONS.

OAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
		Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
1895. April.											
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday	.. 14	30.317	47.5	41.4	N.E.	45.0	55.3	32.6	99.6	28.0	
Monday	.. 15	30.150	41.3	39.0	N.	44.9	55.0	32.3	102.3	27.6	
Tuesday	.. 16	29.943	39.8	39.1	N.E.	45.2	60.1	37.4	101.7	37.8	
Wednesday	.. 17	29.746	48.7	45.6	N.	46.0	66.5	39.6	102.0	40.1	
Thursday	.. 18	29.631	50.1	48.9	S.W.	47.6	61.0	47.4	98.6	43.1	
Friday	.. 19	29.828	48.6	47.1	W.	47.3	65.1	44.1	108.0	40.1	
Saturday	.. 20	30.047	58.6	56.1	S.W.	48.1	66.8	46.2	111.2	39.3	
		29.952	47.8	45.3		46.3	61.4	39.9	103.2	36.6	
										0.113	

REMARKS.

- 14th.—Bright sunshine with cold breeze; clear cold night.
 15th.—Generally overcast till 11 A.M., bright sunshine after.
 16th.—Overcast morning; bright sunshine from noon.
 17th.—Showers about 4 A.M., and overcast till 9 A.M.; sunny from 10 A.M. to 3.30 P.M., but hazy and close after noon. Frequent distant thunder from 3.40 to 5 P.M. with slight rain; dull evening and rain at night.
 18th.—Dull and overcast throughout the day; clear night.
 19th.—Rain between 6 and 7 A.M., and overcast till about 10 A.M., alternate sunshine and cloud after; clear night.
 20th.—Fine and generally sunny.
 A fine mild week.—G. J. SYMONS.

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Have pleasure in announcing for distribution in May a further series of their

CELEBRATED PEDIGREE ROSES,

HELEN KELLER (H.P.), Rosy Cerise, superb .. 10/6 each
MAVOURNEEN (H.P.), Silvery Flesh, first rate 10/6 ..
MARJORIE (H.T.), White, Pink centre, very pretty 7/6 ..

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BELLE SIEBRECHT (Mrs. W. J. Grant).

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The most valuable introduction of the past ten years. This superb variety has gained the highest awards wherever exhibited in Great Britain and America, chief among these being the National Rose Society's Gold Medal.

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Awarded First-class Certificates, Royal Horticultural Society, and Royal Botanic Society, 1895. See Gardeners' Chronicle, March 2; Journal of Horticulture, March 14; and The Garden, March 16.

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STRONG PLANTS, in Pots, £5 per 100, 15/- per doz.
RUNNERS £3 9/-

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Journal of Horticulture.

THURSDAY, MAY 2, 1895.

SPRING PRUNING.

"SURELY this is all done," some readers may not unnaturally say to themselves, as thoughts are converted into words in an involuntary sort of way (which is very much the way of the world) when they see the above short heading. No doubt the pruning of fruit trees in general ought to have been completed, as a rule, some time ago, and it is not very unlikely that a goodly number were too much pruned; but then, again, there are probably many thousands which have not been touched with the knife that would have benefited by its use; and, what is more to the point, may be benefited yet. This applies to trees that were planted last autumn or quite recently during the present spring. The writer planted some last week, and expects every one of them to make good growth during the ensuing season.

These remarks have been incited by the condition of several trees in a garden, which may be, and almost certainly is, typical of other gardens in various parts of the country. This garden contains fruit trees of various ages, chiefly Apples, Pears, and Plums, as well as Currant and Gooseberry "bushes" between them. The owner of the garden must be a fruit enthusiast, or he would not continue planting trees year after year, seeing how little fruit he has obtained, or is likely to obtain, from them. He is not unlike many another—an enthusiast without knowledge, but perhaps has a larger share of the virtue of patience than is enjoyed by the majority, and makes his quiet life happy by living on hope.

It is wonderful—no, perhaps only natural—to see in many an example how easy it is to do exactly what is wrong in the absence of guidance pointing out what is right. Were it not for the teaching of the young—training them intellectually and morally—one shudders to think what the result would be. Untaught and unrestrained the child would grow in years and in mischief, doing wrong by nature and right by accident. It seems to be very much the same on the part of a host of persons, who may be expected to have arrived at years of discretion, in the "management" of their fruit trees and bushes. Discreet the owners of them may be

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in their habits of life, and, in fact, worthy men and excellent neighbours; but regarded in connection with the fruit trees they think they are growing, they are mere children, untaught and untrained, either doing nothing or doing mischief. That this is so, any observer who has been trained as a grower of fruit may see for himself if he drives through sundry villages, and looks over the hedges into the gardens of amateurs and tradesmen as he passes along. It is a pity that it should be so, but so it is, and it is evident that the teaching of practical horticulture in schools, and among the community generally, has been delayed too long.

In the particular garden in question excellent young trees had been planted, as could be clearly seen, some three, some two years, with others about as many weeks. Also a number had grown old enough to be "trained" into bushes and pyramids, and ought to be now in excellent bearing condition. We pause to look at them. Bushes and pyramids! This is what they were some feet above the ground, but by no means down to it, for a good reason, showing very bad management. They had been very much let alone in their early years, and then, when they were "getting too tall, cut into shape." They are now weak, much too weak, at the base, and strong, a deal too strong, at the top. But the owner seems determined to keep them down, or rather cut them back in the winter, for they rush up in spite of him in the summer, but are practically blossomless, and obviously therefore can bear no fruit. Nor will they produce any if they are similarly treated for a generation. They simply represent the mischief of a child who cuts and slashes, and is perhaps proud of his skill with the knife.

It is butchery, undisguised glaring butchery, the outcome of ignorance, and fruit trees similarly mutilated may be seen over the length and breadth of the land. Their root force predominates so powerfully that the annual grossness is but the natural result, and the annual mutilation, miscalled pruning, increases the evil it is vainly hoped to prevent—barrenness. Shorten those strong roots instead of the branches, but removing entirely a number of these so that those which remain are 18 inches asunder, permitting no others to grow between them, and the trees would soon bear more pecks of fruit than they now bear pounds. Digging round them, and severing some of the strong roots now would be going veritably to the root of the evil; and preventing the thicket of summer growths by rubbing out nine out of ten of the shoots now pushing to produce them, would be a change from common mischief to common sense.

Now let us look at the young trees. Just as the older with their powerful roots have been pruned ten times too severely, so with remarkable perversity the recently planted trees with weak roots—the majority of the food imbibers having been left behind in the process of digging up—have not been pruned or had their long young branches cut back at all. Some of these were 3 feet long, about three of these with one or two shorter formed the "head." There they remain now, just the same in number and very little more in length than they were three years ago, some of them studded with blossom, especially towards the tips. The two-years-planted are in much the same state, and if all the blossoms set and fruit remains the trees will be exhausted—ruined. In that way thousands of trees are brought into a stunted condition, and are to all intents and purposes useless during the rest of their miserable lives.

The trees now making their first start into growth after planting are pushing into leaf from the tips of the 2 to 3 feet long branches to a third of the way down, and over the lower half or more of each stem the buds will remain dormant. The Willow-like branches will be the same in number next year as this, but hard, thin, and hide-bound, because it is impossible that the comparatively few roots can do much more than keep them alive. They should be cut back now, and the sap having been summoned into activity, would have its force concentrated on a third of the length of the stem and buds, these latter be forced, and an increased number of

branches issue for forming the framework of a good tree in each case during the coming summer. Of that there can be no reasonable doubt, for the trees are clean, healthy standards which had grown with great freedom last season. They are capable of being made valuable in a very few years, but are in danger of being spoiled, in this case through the want of timely pruning, as certainly as the established trees before mentioned are rendered profitless each year by the excessive and irrational use of the knife. Exactly what is wrong is being done in these two cases in entirely opposite directions, and it is very unfortunate that so many persons, and some even who call themselves gardeners, do not appear able to differentiate between the nature and capacity of trees which on the one hand have roots out of all proportion in strength to the branches, and the other where the branch growth to the same extent preponderates over the power of the roots.

It does not follow that every tree which has been recently transplanted must of necessity have its branches shortened for insuring its growth. It is a fact that unsold trees in nurseries are commonly planted late in the spring—brought together in a quarter, and not cut back; but just because these trees were not sold they were far less vigorous than those that were, and the roots are equal to the support of the naturally shorter and weaker branches—weaker because the best trees go first, and so the selecting continues till the worst only are left behind. These are kept alive the first season and shortened the next, by which time they have made sufficient roots to produce free growth the second summer, and make thrifty saleable "stuff" in the autumn.

As in the case with Apples and such-like trees in the amateur's collection above referred to, so in the case of the so-called bushes. Gooseberries and Currants, with three or four long branches, have not been cut back after planting, and there they have stood for two and three years, gaunt and ungainly, miserable apologies for what fruit bushes should be, instead of occupying vacant air space all around them and forming profitable examples through shortening the long young branches after planting, and thus producing more. This shortening may be done now—at once—with great advantage to young trees innumerable that are pushing growths from the extremities of the long summer shoots of last year; but if last season's shoots of removed trees are weak they may remain unshortened, not forgetting to cut them back in the autumn.—A TRAVELLER.

TO-MORROW.

"'It will do to-morrow' is the kind of insanity that makes aphides laugh, rusts Carnations, mildews Roses, freezes houses, and brings the sheriff right in across your threshold." So says "The American Florist," and although this habit of procrastination may not with us put the man in possession, nor enable us to see the smile of an aphid, not less does it emphasise the proverb, "Prevention is better than cure." Even farther does it go, and provide explanations of things which cannot otherwise be argued away. There are in the field of horticulture abundant pegs which serve to hang on an excuse for that putting off to a more convenient season, and by no means unjustifiable excuse either. The past year of unhappy memory provided a plethora of them. It also furnished some happy examples of prompt action which were at the time duly recorded for our benefit.

A practical illustration was that afforded by the Queen's gardener (Mr. Thomas) and all his men turning out on the eve of that cruel May night, fighting the elements and obtaining a right royal victory. To borrow another trite phrase from our friends across the water, he "licked Creation," and it may be added the proverb, for without preventive measures there would have been no cure—to-morrow.

With the text pure and simple but little dissertation is necessary. Positively, it points with no uncertain hand to the evils of procrastination; negatively, to the benefits of the stitch in time. There is no phase of a gardener's duties nor place in the sphere of his work to which it is not applicable. It is a golden rule, the observance of which will, by the timely use of the hoe, save endless labour in handweeding. The stormy wind which springs up suddenly in the night will be baffled of its prey amongst the Chrysanthemums tops, and the hundred and one things for which

the time is ripe will be done to-day, which may be too late to-morrow.

True, it often means working at high pressure to cope with all a day brings in its train; but it is a duty we owe to others, to ourselves, and to the dignity of the art in avoiding the hurry and bustle of being always a little behind. Now and again we may notice some writer giving really sound practical information on the same principle. We are advised to-morrow as to what we should have done to-day. In addition to the evils exposed in the text I would say this phase of the subject makes readers sorry and editors vexed, for to be advised when too late is "like the wrong medicine, nasty to take and sure to disagree."

Besides these sins of omission, many of which entail a long penance for a small error, obviously the text is capable of further extension. We may at the right time wrestle with and overcome mildew and rust, and make the aphides laugh on the wrong side of their faces, yet stave off the meeting of some disagreeable facts of the same insidiousness of growth. Keeness of competition for places or prices in private establishments or the open market is so patent to all and so acutely felt by many at the present day that we may take the question in the broadest sense, and ask ourselves what are we doing for to-morrow to palliate the disorder which will then have reached a more acute stage, whilst the climax is yet remote.

At first sight the question, which here resolves itself under two heads, appears to be neither amenable to prevention or cure. But is it not just possible that the very magnitude of the evil is a means to the end? Taking gardeners first, we see luxuries of one generation becoming necessities of the next. Now, luxuries may be dispensed with, as they are only controlled by sentiment, whereas necessities stand on a very different basis. The gardener, as the producer, does not generally come under the head of luxuries; yet, too often I fear, has he been considered to be one, and felt his position dependent on the fortunes of his employer. A turn of the wheel inimical to the welfare of the one has brought disaster to the other. In the process of retrenchment the gardener has been weighed in the balance and found wanting, possibly and probably through no fault of his own, but rather of a long-established system he or his employers have been diffident to change. Yet men duly impressed with their responsibility cannot ignore the power they possess nor the urgency of making it known. The practical spirit of the age pervading all sorts and conditions of men resolves itself into the question of counting the cost—will it pay? And when the gardener shows that his work can and does pay—of which there are many practical examples to-day—then his position, as a class, is fixed on the firmest possible basis, for a paying concern needs no props.

On the other head of this question, as to what pays to grow from a business point of view, and that is the most practical of all, some prominence has of late been given to it in these pages. It is to be hoped that the prize medal essay when it comes will settle the matter, at least for to-day. Granted that such desirable results are arrived at, it would not be safe to assert, "It will do to-morrow." Our transatlantic cousins, with their proverbial smartness, anticipate what the world is likely to want to-morrow, and by the exercise of their creative faculties furnish the article and the necessity for it contemporaneously; reaping the benefits of being first in the field. Necessity is not invariably the mother of invention, rather is it at times the offspring of it. The world was neither clamorous for sewing machines nor bicycles until they were invented, now each goodwife's needle flies by mechanism, and all the world (and his wife) go on two wheels. Can we not, with glutted markets and falling prices work on parallel lines; off the beaten track where follow my leader is so much in vogue; let the world wake up to-morrow with a new want already supplied from some hitherto obscure source? The public at large are very much like children; do not ask them their wants to-day, but judiciously place a supply before them to-morrow.

A whole nation wants Tomatoes when acres of glass erected for their production pour tons of the fruit into the market. "Mushrooms for the Million" are provided all the year round, and growers rush in at this game of "follow my leader" until but the narrowest margin of profit rewards their efforts. Men who have made their mark (and their dollars) in these or similar phases of culture, see the dangers ahead, and honestly warn intending competitors. From the broad and liberal lines of political economy we may look beyond the market area and note the enormous advantages conferred on the people by a cheap food supply of high quality. Armies and navies may wax and wane, but in spite of present depression there are great natural laws protecting our food producers, for a nation must eat, whether it fights or not. War is a luxury, food a necessity; and the progress of education raises the standard of living so that a fresh dish is looked for in the menu to-morrow.

The recent article in the *Journal of Horticulture* on "Express

Grape Growing" must have created a deep impression on thinking men. With some it should be a lasting impression. Already I (figuratively) see this literary seed thus sown springing up through the length and breath of the kingdom, producing such fruit at such prices that the artisan will share in the dish hitherto confined to the tables of the wealthy. Express Grape growing will of course yield quick returns and correspondingly smaller profits, but the day of small profits is at hand, and to ensure them will demand all the considerations expressed in our text.

"It will do to-morrow" has, I fear, to answer for many shortcomings. That day in the distance dimly seen enveloped in its nimbus of possibilities, which some find to be but the blight of privation, of poverty when revealed at the last stage of life's journey. To all the pleadings for, and expoundings of the objects of our benevolent and benefit societies are disregarded, and another wrinkle is eventually added to the brow of care. This is unsatisfactory, yet must we hope to see it overcome. Happily we are imbued with the thirst for perfection. It is an innate attribute of man. Progress is progress though by easy stages, and "We are a stage too, not the end, others will come our work to mend."—NEMO.

AURICULAS.

THOSE who knew anything of this beautiful spring flower anticipated that after the very severe weather through which we have passed that neither in quantity nor quality would the exhibition be up to the mark of former years. It is quite true that frost will not kill the Auricula, and indeed in many cases during the past winter the pots have been frozen completely hard, but notwithstanding this the plants do not come out of the battle uninjured. The blooms even though they may not have risen above the foliage become crumpled and never open flat and smooth, while the long continuance of the severe weather so retarded their expansion that one felt that unless where heat had been applied it would be well nigh impossible to place an exhibit on the table; nor were these anticipations falsified.

In the chief class of twelve show Auriculas there were only four competitors, and consequently only four out of the six prizes were awarded, and when it is remembered that last year Messrs. Horner, Douglas, and Simonite were amongst the exhibitors, and that this year not one of them put in an appearance, it will be at once seen what a falling off there was; nor was this all, as some of the collections bore unmistakeable marks of having been forced into bloom. Now, although the Auricula will stand a certain amount of heat judiciously applied, it will not endure forcing. Where heat is used simply to prevent the inroads of frost, and so preserve the flowers from injury, the Auricula will not only stand it, but rather rejoice in it; but where something more than this is done, the exhibitor, finding that his flowers are late and will not be ready for the exhibition, applies heat to force them on, then the plant rebels, and refuses to submit patiently to a proceeding so entirely at variance with its requirements. The flowers then become drawn and weakened, and the blooms themselves are quite out of character. It is curious, for instance, to see how the body colour of the flower is affected. From all these observations must be exempted the collection shown by Mr. T. E. Henwood of Reading, for this I consider to be the perfection of Auricula growing. I know Mr. Henwood's little Auricula house, and can only say that it is nothing but intelligent skill and constant attention that could produce such results.

There is another error into which Auricula growers have fallen. In order to produce larger flowers they have stimulated their plants by the application of a quantity of manure, the result of which is coarseness and loss of character in the flower. There is no doubt that many persons, even amongst those who ought to know better, attach a good deal of importance to size. It is so in all flowers; big Roses, Pansies, and Carnations are regarded with more favour than more moderate sized ones. Now, of course, where size can be combined with refinement there can be no objection to it, but too frequently size implies loss of refinement, and yet a large Paul Neyron Rose or Carnation of the Souvenir de Malmaison type, oftentimes finds more favour than the smaller and more refined varieties. I have often stated, and am more than ever convinced of its truthfulness, that rejecting not only the filthiness which older generations of florists used to put into their composts, but also the applications of simpler manures, those growers will do best who would confine themselves in the main to good fibrous loam. I believe that a compost composed of three parts of this with one part of leaf mould and a little sand, will be just such a mixture as the Auricula will rejoice in.

This love of size is nothing new, although the rigid florist sets his face against it; but on looking back to some fifty-five years

ago I well remember exhibiting a plant of Fletcher's Ne Plus Ultra (then a new flower), but coarse to a degree, and which would not be tolerated now in any first-rate collection. I showed it in, I think, a stand of six against one of the best Auricula growers I ever knew—Dr. Plant of Monkstown, near Dublin. It threw the balance in my favour, and the judges, who could not have been, I think, very exacting florists, placed me above him. The pips were nearly the size of a crown piece, and, of course, out of proportion with those of the other varieties in the stand.

I have already mentioned the excellence of Mr. Henwood's plants. Some of them were especially fine. There was a splendid truss of Richard Headly, of which I had almost said it was the best I had ever seen; but then came back to my mind that magnificent plant of it which my late friend (the Rev. F. Tymons) brought once some years ago to one of the Society's exhibitions in South Kensington. I have never seen its equal either before or since. Mr. Henwood grows it exceedingly well, and manages to have it always in flower at the time of the show, which is somewhat remarkable, as it is with most people a very late bloomer. Then he had a good truss of that most beautiful white-edged Ben Simonite, which few can grow on account of its delicacy, and no one can grow as Mr. Henwood does. There was a fine truss of Prince of Greens, with the usual excellencies and defects in that flower, its splendid edge and its sickly looking tube. Abbé Lizst, a flower of Mr. Douglas' raising, promises to be a welcome addition to our list of green edges. The edge is a particularly bright green, and the constitution of the plant is said to be good. James Hannaford, another of Ben Simonite's seedlings, also promises well; in fact, green edges, which have hitherto been a very restricted class, have considerably increased in numbers.

The older flowers, such as Imperator, are going out of cultivation, and Colonel Taylor, which was long regarded as the best of its class, is not very often exhibited. Dr. Hardy, another of Simonite's raising, was shown by Mr. Douglas in his stand of fifty; it is likely to be a valuable flower, although the bloom alluded to was somewhat defective both in the eye and paste, probably owing more to the season than to anything else. Of course Mr. Henwood had Geo. Lightbody, for what stand would ever be complete without it? although the truss was surpassed in excellence by one exhibited by Mr. Collier, gardener to Miss Kirke Penson, which gained the premier prize as the best Auricula in the show. In Mr. Sanders', the second, collection was a very fine bloom of Mrs. Dodwell, one of the Auriculas raised by the late Mr. Woodhead, which in this instance had a very clear white edge. There was also a very fine truss of Simonite's Heatherbell, and Lancashire Hero, which somehow or other one does not see so often as formerly, was very good.

In selfs Heroine, Mrs. Potts, and Black Bess were frequently shown, and with the exception of two new flowers Miss Barnett and Cherub held their own in their class. Mrs. Potts, beautiful as it is in colour, has the defect of a weak stem and rather sprawly truss, but its colour is exquisite, and shape perfect. One great charm of this show is that it brings together those whom we can meet on no other occasion, especially such northern growers as the Rev. F. D. Horner, for many years the champion grower, and Mr. Ben Simonite, who has done so much to add to our choicest collections. Then there was Mr. Collier, gardener to Miss Kirke Penson of Dinham House, Ludlow, whom I had not met for some years, and about one of the best growers of George Lightbody I ever met with, and whom probably we may not see there again, as owing to death the place is broken up.

Before I close these rambling notes there are one or two thoughts which suggest themselves to me. I notice the great advance made by the south in the cultivation of this flower; indeed, it is mainly confined to Reading, and as I remember for many years there were but two exhibitors near the metropolis, the change is a very pleasing one, and then one cannot but remark how the older flowers still hold their sway. George Lightbody was raised between forty and fifty years ago, and although growers have tried they have not been able as yet to raise another grey edge comparable to it. Curiously enough it was the only one Mr. Headly ever raised which was worthy of him. So, again, amongst white edged ges, Acme that I recollect seeing forty years ago with Mr. Read is still difficult to beat when at its best. Then, again, it is remarkable how indispensable seem to be the four varieties—Mrs. Dodwell, Rachel, George Rudd, and Black Bess—raised by the late Mr. Woodhead, and which every year make us more regret the loss of so intelligent and skilful a florist, who, had he been spared, would, I have no doubt, have added many fine varieties to our collections. Thus, once more have I have been permitted to say something of a flower which captivated me some sixty years ago, and amongst the many claimants to one's attention still maintains the position which a first love ought to hold. So, my brother

Auricula growers, especially you who are young and vigorous, spare no efforts to cultivate and improve a flower which will never fail to maintain its interest for you, and which will afford you many an hour of unalloyed pleasure and gratification.—D., Deal.

BOTHIANA.

(Continued from page 331.)

BEING practically your own master inside the bothy, free to think, to act, to fill up the spare time as you will—whereas, during the working hours as a servant you have no choice but to obey—you are now leading the dual life of master and servant, an intimate relationship which is not always conducive of the best results, unless your mind, as the master, exacts and obtains that implicit obedience as necessary here to success as in the garden. That this master (yourself) is inexperienced you will admit, hence advantages are apt to be taken in a form of internal argument, in which reason is sacrificed to fancy.

It is imperative that you should work on a clearly defined system. Desultory work seldom accomplishes much. Let your plan of study be the ground plan, judiciously designed to meet the requirements of the future. Then, when duly considered and wisely arranged, abide by it. Apart from this, note all details of daily work in the different departments, and let your first moments of leisure after working hours be devoted to recording them in a diary. For this purpose an office diary for the current year, three days on a page, costing from 6d. to 1s., will suit admirably, and form a ready mode of reference in the future. You can also on a blank page, generally provided, neatly write out a plan of study. Each night when all duties, physical, mental, and moral are ended, fail not to take a momentary survey of the day that has gone, and conscience will infallibly tell you whether it is a sound thread you have woven into the web of your life.

In a choice of subjects avoid the error of attempting too much. Do not spread your interest over too wide a field, but it is essential that variety should be introduced; thus will your self-tuition be, not only a recreation to the daily toil, but each section of it will form an antidote to monotony in another. You may consider it somewhat of a slight to your intelligence in mentioning the three R's, previously hinted at in connection with the school books. Do not take it as a disparagement of your mental attainments, yet, if so be that you can happily afford to despise them, let their place be taken by similar ones of higher grade.

READING.

"Some books I'd have, and some acquaintance too;
But very good, and very few."

This, first of the three R's, is alone a subject worthy to fill a volume. The old-time counsel bidding the boys mind their books may now be construed into, Mind what books you read, and how you read them. To consume the fleeting hours in the perusal of attractive but unprofitable literature is not only useless, but worse than useless, for by its means the mind is sown with weedy thoughts detrimental to the culture of the useful, the good, the noble. It may serve the murderous intention of killing time, too often openly avowed in the bothy, but invariably defeated by the scythe-armed conqueror. Nor is it of advantage to meander aimlessly through the best fields of literature. Accompany the author, grasp the subject, and form a mental analysis as you proceed.

Cultivate the art of reading in a critical spirit. Compare familiar ideas with your own experience, and let each new truth as it is revealed to you be indelibly impressed on the memory. Once the impression is properly conveyed to the mental cylinder it can never be lost; hence the greater reason that it should be matter worth retaining. In the preface to a book, which is too often "skipped," is given what is necessary to know; it is the credentials of a stranger, with his reasons for claiming your attention. Frequently is a book borrowed or bought with the sole end of amusement; but if you select your books as you would, or ought to, your friends, there is no reason why pleasure and profit should not go hand in hand. As a gardener, how delightful it is to accompany Humboldt through the virgin forests of the tropics, or trip with Burbidge through Borneo! Yet even with these and similar books of travel, they are rather to be regarded by us as relaxation than to have the prior claim on our time.

Current garden literature will receive a weekly welcome in the bothy. It is the medium of touch amongst men of the profession distributed over the area of the gardening world, and forms a chronicle of progress in all departments. A standard work on gardening is indispensable. Thompson's "Gardener's Assistant" in its comprehensive treatment of so broad a subject is—to the present—unexcelled. As your limited means will allow, the various valuable

works specially treating on the different phases of fruit or plant culture are worthy additions to your small library.

WRITING.

"In graceful curve, and every flowing line,
Untutored pens by practice learn to shine."

Apart from the value of writing a good hand—and in this practice is the high road to perfection—as an aid to the memory, it is of the first importance. Those subjects which deserve and require more attention than obtains from the most careful reading, may by transcription form with the reading a system of double entry on the mental ledger. Yet much of the value of these writing lessons may be lost, unless that scrupulous attention is paid to it that it deserves. Do not lose sight of the dual object here presented.

Keep all your transcript books, and mark progress periodically. Compare your latest performance with its predecessor. Let the criticism be conscientious and impartial, and each improvement, however slight, be the incentive to further endeavour. As writing is worthy of occupying a considerable portion of spare time, some consideration should be paid to the selection of books or articles for transcription, choosing such as are models of excellence from a literary point of view. In this matter, as indeed in all others, let quality more than quantity be the object aimed at. Sentence by sentence, with careful attention to punctuation, will not only accomplish the ends alluded to, but be the means of the art of composition entering into your studies. The school grammar may, too, be of service here, and needless to add the dictionary is requisite.

Many gardeners are by reason of the isolated position they occupy compelled to live in a little world of their own, thus prohibiting that social intercourse with kindred spirits which is as profitable as it is enjoyable. In the vicinity of some large cities mutual improvement societies have been formed. Should such be within your reach you will not, I am sure, ignore the advantages to be derived from this union of hearts and hands.

"Through mutual intercourse and mutual aid
Great deeds are done and great discoveries made;
The wise new wisdom on the wise bestow,
Whilst the lone thinker's thoughts come weak and slow."

My experience of these societies has unfortunately been limited to reports of them in the gardening press, as in my journey through bothydom I was not so happily situated as to be in touch with any of them. Judging by their works, including some admirable essays which now and again find their way into print, I think any young gardener is wise, if circumstances permit, in linking himself to this chain of brotherhood.

Gardens, like gardeners, are stamped with an individuality. Half a dozen establishments within a limited area, and under the same local influences of soil and temperature, will yield a variety of effects. One place will be noted for its Orchids, or Chrysanthemums; another for its Vines, Pines, or what not, and the whole form a nucleus of practical information, which if disseminated through the channel of periodical meetings must result in mutual benefit. The friendly spirit of rivalry will also spur on the young traveller to measure his paces with his fellow competitors, and by the exercise of his pen he too can contribute his quota to this exchange of thought and practice. The pages of our gardening journals are open to those workers and thinkers able to jot down their experience in presentable form, yet how much greater must be the mass of valuable information locked up by diffidence arising from the want of early training of this faculty. Endeavour by all and every means to acquire the pen of a ready writer, to the end that your ideas may be "moulded and clothed in the soft garments of their native tongue."—AN OLD BOY.

(To be continued.)



CÆLOGYNE PANDURATA.

GREEN flowers are rare, and when they do occur they are usually monstrosities, and devoid of any pretensions to beauty. Black is also exceedingly rare in flowers, and this renders the above-named Orchid all the more remarkable, for it contains a combination of the two colours very strongly marked. The sepals and petals are a

pure bright green, the lip also is green at the margin, but it has a black centre and veins of black in the lateral lobes also. The plant is of stout growth, and produces a long raceme bearing six or eight large flowers in well grown specimens. It is a native of Borneo, and has been repeatedly found flourishing on trees in damp situations. The plant requires the temperature of a Cattleya house, and a shaded position, succeeding well in a basket suspended from the roof. The woodcut (fig. 63) represents a flower of this remarkable Orchid.

DENDROBIUM CAMBRIDGEANUM.

A GOOD basketful of this pretty species makes a fine display at this season, the drooping habit of growth showing the flowers to great advantage when grown this way. The species is deciduous, but unlike the majority of this section flowers upon the newly formed leafy stems. The blossoms are produced in twin-flowered peduncles chiefly towards the top of the stems. They are each fully 2 inches across, bright golden yellow, with a deep maroon blotch on the rounded downy lip.

This plant usually commences to grow early in the winter,



FIG. 63.—CÆLOGYNE PANDURATA.

and from then until it flowers should have the lightest position available in the warmest house, the atmosphere being kept well charged with moisture. The leaves must be kept on as long as possible, their function being to help swell up the pseudo-bulbs. As soon, however, as all are fallen the plants must be kept drier at the roots, and in the atmosphere. I usually place this Dendrobium out of doors in the summer time, not fully exposed to the sun, but hung in a tree, this treatment causing the plants to bloom freely. At the end of August they are taken to the Cattleya house and kept dry until signs of growth appear, when they are again introduced to more heat.

D. Cambridgeanum may be grown in three parts of sphagnum moss to one of peat, and given good drainage in small suspended pots or baskets. It roots and grows freely, and if care is taken to thoroughly ripen the growth in the autumn, at the same time avoiding shrivelling, it will also produce a fair complement of flowers. It is also known as D. ochreatum, and was introduced from the Khasia Hills in 1837.

PROPAGATING DENDROBIUMS.

The season having again arrived for cutting away the old stems of D. nobile, when this is practised it may not be out of place to remind growers of the ease with which this and a few other Dendrobiums may be propagated by laying the old pseudo-bulbs on boxes or pans of suitable moisture-holding substance. When there are good forms that it is wished to propagate no better way can be found, and the plants raised are infinitely better than old plants

divided up. The growth is green, and one is not so liable to propagate insects with the plants.

The stems may be laid on entire or cut in lengths, the latter being preferable, as the eyes break more freely. If the old plants have been infested with insects, the stems must be well sponged. Usually fill the pans to within an inch or so of the top with crocks, laying a little live sphagnum below and above the stems. They are then placed in the East Indian house, and damped over daily with the syringe. When the growths are well advanced they may be separated by cutting through the old stem between each with a sharp knife. They may eventually be either potted singly or grouped to form small neat specimens, and if kept through the growing season in a brisk moist heat they will by the end of the ensuing year have formed strong well-furnished plants.—H. R. R.

FUNKIAS.

THESE handsome deciduous herbaceous plants are worthy of being largely employed in extensive gardens, as there are so many positions in which they thrive, where other plants do not. The appearance of the strong growing varieties is bold and striking, and those of less vigorous growth have such beautifully marked and showy leaves, which vary considerably in the different stages of growth, that they are thoroughly adapted for pot culture; indeed, I think those cultivators who commence growing them in this way are not likely to relinquish the practice, especially if they happen to have much house decoration to do, and who has not in these days of artistic development?

All the species are readily propagated by division, which may be effected during the winter and spring months. All that is required is to cut the clumps through with a sharp spade. Each portion ought to comprise several crowns, except in those cases where a particular variety requires to be propagated as quickly as possible, then each crown may be planted separately, and especial care should be taken when the division is made to secure a few young roots to every crown. The present is a good time to divide strong plants in the open air, as they are now commencing their growth. I strongly advise those who have not hitherto grown Funkias in pots to give them a trial at once. Sieboldiana and Fortunei are two of the most vigorous growing varieties, and well adapted for planting in masses in the foreground of shrubberies, indeed they will succeed fairly well in any odd corner under the shade of trees, where few other things except Ivy will grow.

It is, however, necessary to prepare a good sized hole before planting, so that they may start with a foot or so of soil around them quite clear of tree roots; when established they will take care of themselves. A little decayed manure may with advantage be placed at the bottom of the hole. I have several fine clumps (which have been treated in this way) growing under the dense shade of Lilac bushes where few other plants will thrive. The flowers of the first named variety are a delicate mixture of white and pale lilac in colour, and those of Fortunei lilac of two distinct shades. When cut the flowers do not last long, but being borne on stems 18 inches in length often prove useful for arranging in trumpet-shaped glasses. The beautiful glaucous leaves, having conspicuous ribs, are attractive in appearance throughout the summer.

F. japonica aurea is one of the best of the species, the bright variegation of the leaves, in which there is a gradual blending of green with the golden markings, gives them an unique appearance. Unfortunately, however, as the summer advances the leaves become dull in appearance. Notwithstanding this undesirable freak it is a great favourite wherever grown, and is invaluable when grown in pots for decorative purposes. *F. ovata alba marginata* is also another form of attractive appearance, the leaves having a broad margin of white, and on that account is of great value when grown in pots. *F. subcordata* is a green-leaved kind less vigorous in growth than many of the varieties having plain green leaves. The flowers, which are white, are borne only slightly above the foliage, which rarely attains a height of more than 9 inches. The variety is on that account suitable for planting on rockwork or near the front of herbaceous borders.

In gardens where pleasure grounds are extensive a fine feature may be made of Funkias by planting large masses of them in various positions. For instance, when traversing the numerous walks which one always finds in such grounds, it is not unusual to come upon naturally formed recesses with overhanging trees and surrounding shrubs. Here a large mass of *F. Sieboldiana*, encircled by variegated Periwinkle or dwarf growing British Ferns, would come upon any garden wanderer as a pleasant surprise. Undulating banks, having a background of trees or shrubs, might with advantage be converted into a Funkia quarter.

In such a position it would be interesting to plant every species and variety known to be worth cultivating, arranging each in irregular masses, so that the pleasing shades of colour which their leaves possess might be carefully blended rather than contrasted. The habit of growth of each particular variety should also be carefully considered at planting time. In doing this some would plant the strong growing ones on the top of the bank, arranging the others according to their height, so as to form a graduated surface from front to back. A much better plan, I think, is to place a good clump of the tallest growers in prominent positions here and there, and then plant patches of the dwarf varieties between, allowing each ample room to develop, so that the natural surface of an undulating bank, in which swells and depressions of outline merge into each other in easy grace, is distinctly maintained. A feature like this well carried out is, I opine, a not unworthy adjunct to the most pleasing scenes to be found in the best of British gardens, and Funkias are a genus of plants deserving of a greater amount of attention from gardeners in the United Kingdom.—H. D.

DISINFECTING SOIL.

DISINFECTING soil for Cucumbers and Tomatoes as a preventive of diseases caused by eelworm, mites, and fungi, including bacteria and myxomycetes, or so-called slime fungus, is a very important subject. Whenever there is a suspicion of the soil intended for these, or indeed any kind of plant, harbouring parasitic micro-organisms it should be disinfected before use. This may be effected in various ways, the more drastic being that of fire and poison.

1, *Fire*.—Procure a large iron plate and place it on an improvised furnace formed of loose bricks about four tiers high, leaving a slight space here and there as draught holes. Make what is termed a hearth fire, and when the plate becomes hot place the turves thereon, grass side downwards, and leave them until heated, so that the hand cannot be borne a minute on the top or soil side. Remove the sods so heated and stack them. Follow with another lot of turves on the hot plate, and from thence to the stack, and so on until the whole stock of compost has been treated. When such a stack of loam is cool enough it is fit for use, and in no way prejudiced as compost, provided it is not surcharged with coal tar, as would be the case if exposed to a "green" coal fire. This can be avoided by using charcoal or coke, but there is no danger from coal if the hot plate is used.

2, *Poison*.—Procure an ordinary paraffin cask, cut it in two, so as to form two tubs, and burn out any petroleum therein by a wisp of dry straw lighted, not burning the wood, but merely the oil. Put into the base of one of these a wooden faucet or tap. Wash both out clean, and place in one 14 gallons of water. Then place in the other tub 1 oz. of finely pulverised corrosive sublimate (mercuric chloride, $HgCl_2$), and pour on this 2 gallons of hot water, and allow it to stand overnight, after well stirring. Pour the solution into the barrel containing the 14 gallons of water, and let it stand six hours, agitating at least once an hour to insure a thorough mixture, and it is then fit for use. Spread out the soil 1 foot thick and sprinkle it with the preparation, using about a gallon per square yard. If the soil, as should be the case, is in a moist state previously, the corrosive sublimate solution will pass through about the thickness of soil named. Let it lie twenty-four hours, then chop up and mix thoroughly, but not placing the heap thicker than the 1 foot for at least another twenty-four hours. The soil may be used, say on the third day, and if thoroughly impregnated with the poison all parasites will be destroyed. In the case of ordinary soils, it is only necessary to water with the corrosive sublimate solution in the usual way, giving the quantity named per square yard.

It may be applied after the plants are put out, and it will not injure them, but, of course, it is not then a disinfectant, but a curative agent, and if eelworms are present it will kill them; but it will not repair the damage they have done. The strength recommended is one part in two thousand (half that used in surgery), and will not injure the plants, but as a virulent poison must be used with extreme caution.

3, *Non-poisons*.—Preparations of carbolic acid, such as soluble phenyle and creolin (the former Little's and the latter Jeyes'), not only kill the parasites, but actually benefit the plants, using twenty-five drops per gallon of rain water, or an ordinary wineglassful may be used with every 3 gallons of water for disinfecting soil, and moistening it evenly through, as in watering plants generally. It is not desirable to use it on dry soil, but on that moderately moist, or in such condition as when plants are usually watered. These substances in no way sterilise the micro-organisms beneficial to vegetation, and if mineral manures are given—especially lime,

potash, and other inorganic elements—nitrates must form, or nitric acid and ammonia chemically unite with their bases, and the plants will make good use of them under the essential surrounding conditions.—G. ABBEY.

MODERN GRAPE GROWING.

(Continued from page 341.)

RAISING THE VINES.

MOST people who only require a few Vines will buy their plants ready grown, and unless they are adepts at raising them, and have the convenience to do so, this is the better plan; but for those who wish to raise their own, I will describe the method of doing it.

The usual and best method is to insert single eyes or buds from ripe wood of one year's growth. The wood should be cut straight across on the upper side of the eye, and almost close to it; then take the piece of wood in the left hand, with the eye downwards, and, commencing just below the part opposite to the eye, make a slanting cut from 1 to 1½ inch in length, and after cutting a very small piece off the thin wedge-shaped portion at the bottom, to prevent any raggedness, the eye is ready for insertion. Small pots, 3 to 4 inches in diameter, are used for the purpose, and a single eye is placed in each. The soil used should be mostly loam, but if a little good leaf mould is mixed with it the rooting process will be facilitated.

The soil should be placed loosely in the pots without any pressing, heaping it up above the rims; then take each cutting, and insert it straight down the centre of a pot, and with the two thumbs placed one on either side of the cutting press the soil firmly down, adding more if necessary, and leaving the eye covered to the depth of half an inch, and also leaving half an inch space in the top of the pot for watering. The soil, of course, should be in good working condition, neither too wet nor too dry, and rather erring on the side of dryness. The time for this operation is as soon as the leaves have fallen, or between the middle of December and the middle of January.

A temperature of 55° to 60° by fire heat is sufficient, and though they may be plunged as long as they remain in these small pots to prevent too rapid changes in the way of moisture and temperature, they should not be subjected to a great amount of bottom heat. The leaves will generally commence to grow first, and then there will be a stop in the upper portion till the roots have started. When they show signs of making a second start at the top the roots will probably have reached the sides of the pots, and the young plants will be in the best possible condition for removing into pots of a larger size, say 6 or 7-inch. It is very important to have the soil in good condition for this shift, and it should be in the house for several days before the operation takes place.

A good substantial loam, with a little admixture of bone dust is all that is required. Care should be taken not to break the balls, but after securing the drainage and placing a handful of soil at the bottom of the pot the ball containing the young plant should be placed in the centre with its surface an inch below the rim. The new soil is then pressed rather firmly with a potting stick in the space between the ball and the side of the pot, finishing by leaving about three-quarters of an inch space at the top for watering. The upper half inch of soil should not be pressed but left loose, and do not be too particular about making it very fine and level. The whole process is but the work of a minute, and any longer time spent about it is only mischievous.

There is no reason why the young plants should be injured in the least by this repotting, but there must be no taking them to the potting-shed and no cold soil used, and, what is of equal importance, there must be no coddling or nursing as if they were so many invalids who had undergone the amputation of some of their limbs. The plants as they are potted should be arranged on a bed of ashes, sand, or gravel, not boards or slate, and be kept continually in a light position. As regards air and temperatures, they should be treated exactly the same as I shall recommend for permanent Vines. In a few weeks they will be ready for their final shift into 11 or 12-inch pots, and this is done in much the same way as the former shift, but adding a few half-inch bones as well as the bone-dust to the loam.

The best plan of training is on wires, fixed to the roof of a small house or pit, with not less than an 8-foot rafter. About Midsummer Day they should be stopped, and any growth made at the end after this should be kept checked, leaving a leaf at a time if this is found necessary, and keeping the laterals pinched in to one leaf. The stems will now thicken, and the buds become plump. It is of no consequence if one or two buds burst near the top, as that portion will be cut off; but if too many are inclined to burst, then a little lengthening must be allowed to take place to prevent this happening.

Now these directions are of no use to anyone who will not follow them thoroughly. This hard stopping will not answer if you are growing the young Vines on the stewing system, as so many people do. Treat them, as I have said before, the same way as I recommend for permanent Vines, never syringe them, and never shut them up with a high temperature or a saturated atmosphere. By September, or as soon as the wood begins turning a little brown, the laterals may be entirely removed as far as the partial ripening condition extends, following it up as it is seen there is no danger of the eyes bursting, finally cutting off the unripe portion of stem at the top, and you will be rewarded with plump brown eyes while the principal leaves are still green.

Some will say, Why take all this trouble with Vines that are to be cut down? Well, if you wish your plants to flourish in after years you must grow abundance of good, hardy, medium-sized roots, and ripen them

well. This can only be done by attending well to the upper portion of the plants. The best growers for sale take particular care about all this, but since the demand has sprung up for a low-priced article a great many Vines are now sold which are necessarily grown in a cheaper manner. These may look very well, and satisfy the purchasers at the time, but after results are not quite the same.—WM. TAYLOR.

(To be continued.)

RADISHES.

IT seems at the outset about as difficult to write an intelligent paragraph concerning Radishes as to make an epic from the proceedings of a police court. Still Radishes have a good deal of interest, and most certainly they have about them a great deal of beauty. I am now referring to small spring Radishes chiefly, although there are some of giant form that are very useful in the winter when sliced with salads, and merit much wider cultivation than they usually obtain. The long white and rose-coloured forms have almost huge roots, whilst the older Black Spanish Turnip, as well as tapering rooted varieties, are most acceptable salad elements.

Of all early salading none seems more welcome, nor are more sweet and crisp, than the small coloured and early sorts. They are from a salad point the barbingers of spring. To many of us there has not been great variety, even in Radishes. We have ordered seeds from year to year of the mixed Turnip forms chiefly, the long tapering forms having got somewhat out of date. Then we have more recently added to our orders the pretty French Breakfast varieties, and there have stopped. But to Messrs. Sutton & Sons, of Reading, are we indebted for the eye opener as to Radish varieties they have, and of which such a very interesting as well as charming exhibit was made at the recent Drill Hall meeting. Few who saw these very pretty and varied samples could but feel their mouths to water, as mentally they crushed the delicate flesh between their teeth, as the roots were so soft and crisp that the most tender of molars could eat and enjoy. Here were some twenty-two distinct varieties, but they were not all in commerce. Most of them were new, and some of them had in a marked degree that desirable quality for forcing varieties—very short tops.

Of the number nine were shown specially as forcing kinds, not only because their tops are so diminutive, but also because extra precocious. Then there were thirteen others having stronger leafage, seeds of which had been sown at the same time as the short-topped sorts, but the latter had beaten them by several days. All were raised from seeds sown on a warm manure bed out in the open, and in six weeks were pulled in perfect condition. No one can say that such quick maturing does not indicate precocity. Here is a wrinkle also worth noting, that seeds thus sown on a hotbed not only germinate far more evenly, but also much more quickly than when sown in the open ground, so that even a bed for Radishes for specially early use soon repays for itself. These short-top varieties are so suitable for that form of culture that the bulbs may be set as thickly as they can stand on the ground and all will mature. A mat or two thrown over the bed at night is very helpful in retaining warmth and protecting from frost, and for that purpose a few stout sticks bent over the bed, or a light framework of wood, standing a few inches above the plants will suffice. Such a bed would do admirably to bring on Marrow plants after the Radishes were pulled if hand-lights were used to protect them for a few weeks.

The special short-topped or forcing varieties were Earliest Frame, about 1½ inch long, of the Olive form, though thinner, bright red colour, very handsome and crisp; a very beautiful variety this. Also Crimson Forcing, about 1 inch long, Olive shaped, deep rich red; Sutton's Carmine, rather shorter, of a beautiful bright carmine hue; Red Turnip, round, bright, and pretty. There was also a similar form having white tips. The French Breakfast form is also red with white tips, but rather more pointed in shape. Earliest of All has a pretty cerise coloured skin with a very tiny top; there is also a white form of it. The general collection included, of stronger leafage, Wood's Frame, Long White, and Long Violet, all very distinct; also the Scarlet Olive and White Olive; Scarlet Globe, rich colour, a fine variety. The Fern or lacinated-leaved Radish is distinct and novel, and has pretty red Turnip roots. Other forms were the ordinary French Breakfast, these white-topped, and Ruby Turnip. All serve to show that of forcing or early Radishes we have now a very liberal choice.—A. D.

OLD ORCHARDS.

IN the western counties there are far too many worn-out orchards in evidence, and I find they are nearly as plentiful in some parts of the midlands. Curiously enough, one of the worst I know forms part of what is supposed to be a model farm. It is also observable the owners or those in charge are beginning to wake up to the fact that something ought to be done towards "mending or ending" such a discreditable state of affairs. As might be expected, renovating measures, or what are expected to be such, vary considerably. In some instances the hand-saw and bill-hook are principally relied on to effect an alteration for the better, a goodly supply of firewood being the first outcome of these rather drastic proceedings. Some few operators are not content with this; but, in addition to letting much light and air into previously badly crowded trees, they also dress the stems and principal limbs with limewash. It occurs to some few that the roots also stand in need of assistance, and these either apply liquid manure, of which there is

usually large quantities literally running to waste during the winter on some farms, or else give a liberal dressing of farmyard manure, while the American method of folding and fattening sheep in orchards is tried by the more enlightened farmers and growers. Already an improvement has been effected in many instances in the quality of the fruit produced, but the unfortunate part of the case is that more than half the trees operated on are of comparatively worthless varieties.

Fine old trees of Blenheim Pippin, Warner's King, Reinette de Canada, Wellington, Norfolk Beefing, Colonel Vaughan, Beauty of Kent, Cox's Pomona, and a few other valuable varieties are well worthy of every attention, and the first-named in particular should never be cut down before it is seen what can be done towards restoring the trees to a more healthy, profitable state. Now that good samples of superior varieties are fast becoming more plentiful there will be no demand for rubbishy or worthless Apples, and the trees that produce these are not worth retaining, unless for the purpose of cider making. Re-grafting with superior varieties is one good way out of the difficulty, especially if the roots also be attended to, grubbing up and replacing with young trees being another.

Judging from the number of young trees to be seen in old orchards this form of renovation has been adopted by a majority of owners, though in many cases with very indifferent results. Farmers are too fond of buying what they want in the open market, taking their purchases home with them. This may answer well enough when they obtain their trees from a reliable local nurseryman, though even in this case a few hours' exposure to cold drying winds have done great harm to the roots. More often than not the trees are brought from a distance and sold by auction. They are large, are sold cheaply, and are dear at any price. It does not occur to the purchasers that these trees or bushes are mostly of varieties for which there is little or no demand, and are cleared out cheaply from large nurseries accordingly. Sometimes speculative individuals buy up long rows at clearance sales of nursery stock trees, probably not having been transplanted for several years, and these tall trees are dragged out of the ground and hawked about the country. In any case no reliance can be placed on the nomenclature, and long exposure of the roots gives a check from which the trees recover but slowly if at all.

At least one-half of those wretched, stunted young trees to be seen in old orchards are varieties that no experienced fruit grower would recommend or plant, though the cause of their unhappy plight may have yet to be given. Where the mistake is made in so many instances is the preparation of the site. These trees are not planted exactly where the old ones stood, but if they are in the same orchard and are given no fresh soil they might just as well occupy the old sites. How can the ground generally, in an old orchard, be otherwise than completely impoverished of all the elements required to build up and sustain young trees?

If my advice is taken only well proven varieties of fruit will in the future be ordered, a fair price being given to a reliable nurseryman for the trees. Select sites as near as possible midway between the old stations, taking out a cartload of the old, reserving the turfy top spit, and bringing in a similar quantity of fresh soil for each tree. Then all young orchard trees must be properly staked, or crooked stems will become the order of the day. They ought also to have their stems effectively railed or bushed round as a protection against calves, sheep, hares, and rabbits. Full grown cattle, horses, and colts I would keep out of an orchard.—W. IGGULDEN.

MARKET PLANTS AND FLOWERS.

(Continued from page 366.)

PREPARING PLANTS FOR MARKET.

It cannot be too forcibly expressed that the grower who takes the greatest care to make what plants he may choose to send into market as attractive as possible, to command the taste of the buyers, is in a fair way to success. His plants must be showy, healthy, neatly grown, and tolerably hardy, which last feature should not be lost sight of. If the growers would only but give some of their plants a week in a cool house prior to sending them to market, the florists who supply the public would not have so many complaints to answer about the undurability of what they now supply.

Plants in pots are generally sold by the dozen, though some growers are not above selling single specimens. Spring plants, such as Hyacinths, are made more effective if planted three bulbs in a 48-pot, a mixture of colours, or all whites, Tulips, five bulbs; Van Sion Narcissus, four bulbs; Lilies of the Valley, twelve to fifteen crowns, as they do not all grow with the same vigour. These are first grown in boxes or beds where a proper temperature can be maintained, and as each become ready are transplanted into pots or boxes and prepared for market. It may be remarked that some growers of spring bulbs, as soon as the plants are ready for decorative purposes, send them to market in small shallow boxes, each holding about four dozen, which not only saves weight and pot room, but they are also more handy for the florist for furnishing purposes, such as making up baskets and other floral devices with Palms and Ferns. Tulips are made up in the same way, six dozen in each box; smaller boxes with two dozen.

The spring flowers such as the foregoing are extremely pretty and most pleasing, adapting themselves to what may be termed indifferent treatment. They all seem to possess abundance of nutriment stored up to carry them on successfully, whereas the plants that come afterwards have to be more carefully handled by the florist in making up the different objects of floral beauty.

Those who wish to grow Hyacinths for market must procure the best kinds and as early as possible. The first supply should be planted by the end of September, so as to meet Christmas demands, and onwards to March, which generally brings a brisk demand for all spring flowers, and a greater variety of plants begin to find ready sale; such as Genistas, a most useful and popular plant for window decoration; Spiræas, Mignonette, Lilies of the Valley, Primulas, Cinerarias, Cyclamens, Azaleas, Deutzias, Marguerites, and all ornamental plants, such as Ferns in pots, from thumbs up to 32's, and Palms of all sizes, also hardy shrubs, such as green and golden Euonymus, Aucubas, Rhododendrons, all newly potted and made to look fresh and green.

Palm growers are most careful to have their produce properly cleaned and staked if need be. Indianrubbers, Aspidistras, Crotons, and Dracænas must all be in a shining condition, and flower pots washed, for nothing adds to the beauty of the plant more than a clean flower pot.

A good trade is also done in the finer climbing plants for conservatories, such as the showy Clematis, which some growers produce as early as March nearly in flower. The beautiful white Mrs. Bateman, lilac Lady Londesborough and Albert Victor, are made all the more showy and attractive by being placed six plants in a small box, thus forming quite a picture. We may soon expect to see a great novelty, no less than a scarlet Clematis, which is said to have all the free blooming qualities of Jackmanni, with flowers of greater substance.

Climbing plants for covering walls, balconies, and verandahs, such as the common Virginian Creeper, also Veitchi, one of the very best; Clematis Jackmanni, very popular; the common Irish Ivy, also small-leaved varieties, are extensively sold, all neatly staked or tied-up compactly.

THE FLOWER ROOT SEASON.

March may be said to be the commencement of the root period, and according to the character of the weather so the season may be late or early.

Amongst the various flower roots which find the readiest sale Pansies are without doubt the most popular, but they must be good, large, solid flowers, with blooms fairly expanded, and sent to market in small boxes containing two dozen plants. Violas are treated in the same way, and also find ready sale. Red and white Daisies are in good demand; Polyanthus, Wallflowers, dark and yellow Sweet Williams, Canterbury Bells, Forget-me-nots, Antirrhinums, Creeping Jenny without limit all find purchasers through the months of March, April, May, and part of June, then the sales begin to flag, and the root season soon comes to an end.

THE BEDDING SEASON.

With the bedding season commences the busiest market period of the whole year. No one need wonder where all the plants go to. Let them but take a walk through the streets and squares, fashionable or unfashionable quarters of the metropolis, in the month of June, and see the windows and balconies and "hanging gardens" replete with double pink Ivy Geranium, Marguerites, Fuchsias, Mignonette, Musk, Lobelia, Creeping Jenny, Pelargoniums, and others without end. Even business premises have now begun to take the flowers in hand, and above the entrances and windows the flowers now surmount and give to such places quite a gala appearance. And the bedding out of suburban gardens is a question of millions.

Of such plants as Pyrethrum (Golden Feather) pricked into shallow boxes, six or seven dozen in each box, Lobelia ditto, and Coleus, Petunias, Verbenas, Calceolarias, Echeverias, Amaranthus, Perilla, single Dahlias, Fuchsias, Musk; in fact, all plants that are used for bedding purposes, are chiefly grown in handy shallow boxes. The cultivator who goes in for the above should aim at evenness of quality and full boxes, and have a good supply to meet the market from the beginning of April right away to the middle of June, and he will have no cause to complain.

The bedding season, running conjointly with the season for the furnishing of the multitudinous windows and balconies throughout the metropolis, is the grower's harvest, and he must be prepared with good forward stuff, "showy" is the word. Whether it be boxes of common red or white Daisies, or Zonals, Fuchsias, Heliotropes, and others, let them be showy and shapely, they will command the market.—A. M.

(To be continued.)

EXAMINATION IN HORTICULTURE.

I HAVE read the remarks of "W. D., Turnford," page 361, on the above subject, and noticed how careful he was to evade the main point in question. Why did he omit the last few words of the paragraph commended by Mr. Kemp, page 333, when his advice to young gardeners is to think for themselves and they will see that theory alone is perfectly useless? Then why give a certificate for a thing which of itself is perfectly useless?

I hope twenty-five years' experience has taught me not to condemn the theory of gardening. Nay, I commend it, for what gardener is perfect without it? I thoroughly agree with the remark, that combined with sound practice it is a boon, and I am pleased to say that the practical man knows how to appreciate it.

Through fear of trespassing farther on your space I will only add that I still adhere to what I have written on page 290. To my mind a certificate gained under present conditions is misleading as a test of a man's abilities as a gardener, and leave readers of the *Journal of Horticulture* to judge for themselves.—H. O. H.



THE WEATHER IN LONDON.—The weather in London during the past week has been very variable. At the end of last week heavy showers fell, and on Saturday thunder accompanied downpours of rain. Sunday was dull and cold, but since then the weather has been bright and genial.

— **WEATHER IN THE NORTH.**—For the past week the days have mostly been dull, and a good deal of rain has fallen, especially during the nights. The minimum temperature has never been 40°, and rapid progress has been made in vegetation. Tuesday morning was bright with a coldish west wind, and a high and rising barometer.—B. D., *S. Perthshire*.

— **ROYAL NATIONAL TULIP SOCIETY.**—This Society, in order to encourage the cultivation of the Tulip, is prepared to hold its annual exhibition this year about the end of May in a fresh locality. If any horticultural society within 100 miles of Manchester entertains the idea of having the exhibition in its district, full particulars can be had on application to the Hon. Secretary, Mr. James W. Bentley, Stakebill House, Castleton, Manchester. The southern Tulip show will this year be held in the Temple Gardens on the opening day (May 21st) of the Temple show.

— **JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY.**—This publication has just come to hand, and contains, besides general matters of interest, the papers that have been read at the Drill Hall, which are as follows:—"Cactaceous Plants," by Mr. John W. Singer. "Filmy Ferns," by Mr. J. Backhouse. "Relations Between Gardeners and their Employers," by Mr. Malcolm Dunn, F.R.H.S. "Lord Bute's Vineyards," by Mr. A. Pettigrew, F.R.H.S. "How to Popularise Orchid Growing," by Mr. E. H. Woodall, F.R.H.S. "Origin of Common Vegetables, and their Value as Food," by Professor G. Henslow, M.A., F.L.S., &c. "Chrysanthemums," Mr. C. E. Shea, F.R.H.S. "Principles of Judging at Flower Shows," by Mr. Jas. Douglas, F.R.H.S.

— **THE FRUIT PROSPECTS IN NORTH STAFFORDSHIRE**—These are, so far, very cheering. The Apple trees are very full of fruit buds. The recent copious showers are greatly helping them to burst. Plums and Damsons (for which this part is famous) will soon be a splendid sight, and should mild weather continue there will undoubtedly be heavy crops of fruit; there are good signs of healthy foliage, which will prove a great protection. Gooseberries and Currants are very promising, considering the damage done by the birds. Raspberries and Strawberries leave nothing to be desired in appearance, especially where the latter have been well protected with abundance of litter.—F. WARD, *Denstone*.

— **GUIDE TO THE KEW ECONOMIC MUSEUM.**—We have received No. 2 of this publication, which deals with Monocotyledons and Cryptogams. The preface says that "the botanical character of the plants represented by the specimens and products in this museum are chiefly these:—1, The embryo plant in the ripe seed has but one seed-leaf, or cotyledon (hence called Monocotyledons) and the first leaves alternate. 2, The species having woody stems, form isolated bundles of wood, which usually do not increase in thickness year by year; once formed they remain unaltered in diameter, scattered through the pith-like substance of the stem. 3, The parts of the flowers are usually in threes. 4, The veins of the leaves, excepting in a few orders, are parallel, or if diverging, not irregularly netted. The collection occupies two floors, commencing in room No. 1, on the left-hand side of the passage on entering by the north door. The number of each room is affixed above or by the side of the doorway leading into it. The cases and objects specified in this guide are each numbered consecutively from room No. 1. In all there are 147 cases, and the contents of each are described." Case 147 contains Myxomycetes, which have been more than once mentioned as injurious to vegetation by Mr. G. Abbey. The note on this case in the Guide is as follows:—"A small, but widely distributed group of organisms, remarkable for the power of voluntary movement during the earliest stage of their development. For this reason the group is considered by some authorities as belonging to the animal kingdom."

— **GARDENING APPOINTMENTS.**—Mr. J. Bennett, for some time gardener to Jas. Hornsby, Esq., Stapleford Park, Melton Mowbray, accompanies this gentleman to Laxton Hall, Wansford, Mr. Ellis succeeding as gardener at Stapleford, which has been purchased by John Gretton, Esq.

— **INJURY TO LAVENDER BY FROST.**—I was not at all surprised to see the note of reference to the quantity of Lavender plants killed by the recent frost about Wallington. Several acres have been under cultivation here for the last few years. I am sorry to say much of it is killed outright, especially the plants raised from slips inserted during the autumn of 1893, and finally planted last autumn.—E. MOLYNEUX, *Swanmore Park*.

— **BEES FERTILISING BEANS.**—On page 370 "English Bee-keeper" mentions Beans being fertilised through the agency of bees puncturing the blossoms at their base. This is done by other insects besides wild bees and *Apis mellifica*. Are the flowers fertilised in this manner? When the bees puncture the blossoms they are after honey, and do not come into contact with the anthers or stigmas of the flowers. I have perhaps not given the matter the attention to warrant a contradiction, but think so long as bees do not enter the mouth of the blossom they are of no service, but would like to hear what others have to say.—OBSERVER.

— **NATIONAL HORTICULTURAL SOCIETY OF FRANCE.**—The international horticultural exhibition to be held in the beautiful Tuileries Gardens, Paris, in connection with the above Society promises to be a great success. Applications for entries are very numerous, but considering that upwards of 30,000 francs are offered in prizes this cannot be wondered at. Special arrangements have been made with the Customs for the facilitating of the entry of exhibits from abroad. The show opens on May the 22nd, and continues until May 28th. Full particulars may be had from the General Secretary, Mons. Abel Chatenay, 84, Rue de Grenelle, Paris.

— **HORTICULTURAL LECTURES AT GRASSENDALE.**—The second course of horticultural lectures under the auspices of the Garston Technical Instruction Committee has just come to a most successful conclusion. In no other part of the Liverpool district can we point to such good results, every meeting being well attended. The following lectures have been given:—"Orchids," Mr. R. Todd; "Primulas, &c.," Mr. J. Glover; "Hardy Fruit," Mr. T. White; "Chrysanthemums," Mr. G. Haigh; "Herbaceous Plants," Mr. John Moir; "Cultivation of the Vine," Mr. J. J. Craven. In concluding, I may remark that Mr. Blomley has for a second time ably fulfilled the office of Chairman, and Mr. D. H. Browning, the courteous Secretary to the Instruction Committee, has worked with a zeal which has commended itself to all in the neighbourhood. The next course of lectures commences in October.—R. P. R.

— **DEATH OF MRS. A. H. SMEE.**—A large number of our readers will learn, as we do, with extreme regret of the death of this kind and estimable lady, which occurred on Wednesday in last week, after a long and painful illness, borne with great patience and fortitude. Mrs. Smeë shared with her husband the love bestowed on the garden, and took great interest in the varied contents in it and the well-being of the workers. A local paper, the "Carshalton Herald," publishes the following just and appreciative tribute to the memory of the deceased lady. "Mrs. Smeë had resided at The Grange for something like sixteen years, and during the whole of that time had taken an exceptionally active interest in the doings of the locality. She did not believe that her duty towards her neighbour had been done when she had forwarded a cheque to the local clergy or a subscription to some charitable society. She knew that sometimes a sympathetic word is of more value than silver or gold, and no inconsiderable portion of her time—which might perhaps have been more pleasantly spent in the social amenities open to her—was devoted to visiting and relieving the sick and distressed. Her character, kindly and sympathetic heart, always felt for those in trouble. The extent of her charity will never be known, and still less the number of personal services she rendered to her poorer neighbours in times of difficulty or trial. As an evidence of her kindly disposition and thoughtfulness for others it may be mentioned that at Christmas last, when she was weak and ill from pain almost past bearing, she herself took measures to insure that none of her pensioners and none of those she had been accustomed to help at Christmas time were without their customary remembrances, and her bereaved husband is not alone in his sorrow at her decease." Not alone, we may add, by a very long way, and many persons beyond the locality in which he resides will extend heartfelt sympathy towards the great amateur horticulturist.

— THE TIMBER SUPPLY OF THE UNITED STATES is being exhausted at twice the rate of its recuperation from tree growth.

— WE regret to announce the death of Mr. Andrew Kerr, Nursery Manager for nearly twenty years to Messrs. Stuart & Mein, Kelso, which occurred on the 14th inst., after a long and painful illness.

— TROPÆOLUM TRIOMPHE DE GAND.—This plant is grown to the best advantage at The Priory, Warwick. Some two or three dozen pots of it were placed at the foot of the iron rods that support the roof of the flowering house in the early winter, and after the plants had been trained to the glass they were continued until they met each other. The effect now produced is very charming and picturesque. Mr. Smith, the gardener, told me that some thousands of blooms had been gathered for winter decoration.—G. BURROWS.

— GROWING ASPARAGUS IN AUSTRIA.—A Belgian horticultural journal describes certain means employed in Austria to obtain enormous sticks of Asparagus. One consists in placing over the head of the Asparagus, as soon as it appears above ground, a wooden case pierced in its upper portion with holes to allow of the circulation of air. A more rough and ready method is the fixing of an inverted bottle over the plant, which grows through the neck. Asparagus grown in this way is not coarse and insipid like much giant Asparagus that is forced, but delicate and tender as the thin green wild variety, or the ordinary garden Asparagus.

— LILIUM HARRISI.—The growth of this plant has become an important industry in Bermuda, as indicated by the fact that the annual exportation of bulbs from the island to the United States for the past five years has, according to an American contemporary, been from 2,500,000 to 3,000,000. As the average production of every bulb is six flowers, from 15,000,000 to 18,000,000 blooms are used in America in decorations yearly. Of course this entire crop is not used for the Easter festival, as the Easter Lily has been popular for the past ten years for interior decorations, weddings, receptions, or other similar ceremonies. But American growers insist that fully 60 per cent. of the entire crop is used during Easter week.

— THE PLUM BLOOM.—This is everywhere just now a mass of snowy whiteness. What a promise does it offer of a Plum crop. The recent rains softened the air, the bloom buds, and leafage, therefore the burst of bloom was, almost irrespective of sort, simultaneous. We could just now do with rather more of sunshine to help set the flowers, but at least there is no frost, and the nights are not cold. If only one-fifth of the bloom produces fruit there will still be an enormous crop, and these immense crops are hardly desirable in the interests of the trees or of cultivators. It is not easy, however, to thin Plums on myriads of standard trees, as they are too big and too much out of reach. On bush and wall trees that can be done easily. In view of so great a Plum produce it will be well for fruit preservers to make the most of it, as we may have to wait a couple or three years before the trees can fully recuperate. The great profusion of bloom on the wild Blackthorn shows that it is a natural Plum season. We can now fairly hope to see a great and a profitable crop.—A. D.

— FUNGUS ON QUINCE.—The fungus which spots the leaves of the Quince and produces the black spot on the fruit is nearly always present, and this is especially true when the trees are standing in sod. It is from the effect of this disease that the leaves of the Quince often begin to fall in August and early September, while, of course, the foliage ought to persist until the fruit has ripened, for the loss of the leaves deprives the fruits of nourishment at the time when they are completing their growth. This defoliation also prevents the tree from storing up energy for the next year's crop. But not only is the fruit stunted before it is fully grown, but the fungus also attacks the fruit itself, causing cracks and lop-sided growth, as in the case of Pears when attacked by the same fungus, *Entomosporium maculatum*. In a late bulletin on the Quince in western New York, Professor Bailey shows that this fungus can be held at bay by spraying with the useful Bordeaux mixture. Half of the foliage fell from the unsprayed trees, and the remaining leaves were small and yellow. The foliage on the sprayed trees was large and dark green, and plainly helping the growth of the fruit. Experience seems to show that the spread of the spot may be wholly checked, even after the leaves are conspicuously marked by it. Of course, it is unwise to wait until the disease appears, and the first application ought to be made soon after the blossoms fall.—("Garden and Forest.")

— IT is stated that there are 82,222 ACRES OF RAISIN VINEYARDS IN CALIFORNIA, producing 80,000,000 lbs.

— THE FERN VEGETATION OF JAMAICA is said to be the richest in the world, comprising between 400 and 500 species.

— PEACHES IN MICHIGAN.—Michigan is entering the list as a Peach-growing State. Orchards are being formed of 500, 1000, and even 10,000 trees. The promoters of the enterprise anticipate a good return on their outlay, as the conditions are said to be favourable for the culture of Peaches.

— A LEXICON OF ORCHID HYBRIDS.—This is a little work of some 140 pages published by M. Octave Doin of Paris, and compiled by Herr E. Bohnhof. It is divided into two parts, the first containing a list of the artificial and natural hybrids known up to January 1st, 1895, the second consisting of tables to facilitate finding the parentage and synonyms of the hybrids, as well as those hybrids obtained reciprocally. What prefatory and explanatory matter there is apart from the tables has been expressed in English, French, and German, and will serve materially to extend the usefulness and popularity of the publication.

— CHISLEHURST GARDENERS' ASSOCIATION.—The members and friends of this Association celebrated the close of the fourth session by a dinner, on Wednesday, April 24th, the President, Mr. J. Lyne, occupying the chair, and thanked the members for the loyal manner they had supported him since he had filled that office. The Secretary, Mr. R. Filkins, in proposing "Continued Success to the Chislehurst Gardeners' Association," gave a résumé of the work done by the Association during the past year, and also presented a financial report, which was very satisfactory. Mr. McKirchor, from Messrs. B. S. Williams, replied to the toast of "The Visitors," and a most enjoyable evening was spent.

— THE PEOPLE'S PALACE AND EAST LONDON HORTICULTURAL SOCIETY.—We have just received the balance-sheet and report of this Society, and are glad to note the finances are in a prosperous state. The report, too, shows that good work has been done, and that flower culture in the East of London is being materially increased. We trust the Society will continue to flourish, and that the two shows arranged for the coming seasons will be great successes. Praiseworthy encouragement has been given by Messrs. B. S. Williams & Son of Holloway by the presentation to the People's Palace Winter Garden of nearly 300 plants, including Camellias, Azaleas, and Palms. The Honorary Secretaries are Messrs. H. E. Boulton, E. Flower, and C. E. Osborn.

— THE EASTBOURNE BATTLE OF FLOWERS.—The weather conditions were unfavourable at Eastbourne on the 24th inst., when the central feature of Carnival Week, the Battle of Flowers, took place. Up to the commencement of the proceedings the outlook was bright and promising, but heavy clouds then overspread the town, and for about an hour rain fell in copious showers, causing no little discomfort, and marring to some extent the spectacular effect of the fête. It, nevertheless, was a great success, alike in regard to the dimensions and brilliancy of the pageant, the crowds which gathered to witness it, the beauty and variety of the individual "exhibits," and the character of the arrangements. Decorations had been carried out on an extensive scale, especially on the Grand Parade and other thoroughfares traversed by the procession, the householders and shopkeepers having united loyally with the Fête Committee in beautifying the streets and buildings, and producing effects of colour and design that commanded general admiration. The abnormal assemblage of visitors was greatly swollen by the excursionists who arrived during the morning in thousands from London and all parts of Sussex, and such dense masses of holiday-makers have, perhaps, never before gathered in the town at any one time. There was inevitable crowding and excitement during the progress of the "battle," but excellent order was preserved. The procession, which was hailed with continued rounds of cheering, consisted of between sixty and seventy gorgeously decorated carriages, including four-horse coaches, pair-horse and single-horse vehicles, children's and village carts, and allegorical cars. In the decoration of the vehicles and horses drawing them, neither money nor trouble had been spared. At a given signal, after the judging was over, the flower-throwing between the spectators and processionists commenced, and this was kept up vigorously along the whole length of the Parade, some thousands of bouquets being utilised for this purpose. The fusillade occasioned much merriment, and the spectacle presented from the tribunes was extremely pretty.—("Standard.")

— THE presence in the sick room of FLOWERS WITH DELICATE FRAGRANCE is generally beneficial. Certain colours are said to act favourably on the nervous system. Red blossoms are stimulating, while delicate blue flowers are soothing.

— PROTECTING SEEDS FROM BIRDS.—In "Work for the Week," page 369, we are reminded of protecting seeds by means of red lead. The writer has overlooked what he probably knows, that brickdust is very often sold as red lead, and does not act as a deterrent to birds as genuine leads, red or white, do.—T.

— WEATHER IN THE ISLE OF WIGHT.—Mr. C. Orchard writes:—"We are having genial weather—mild bright days and showers at night, which is making everything that has survived the frost grow like magic. There is promise of a good bloom on all hardy fruits, and Strawberries are coming round, although they were apparently killed. We shall soon be able to see to what extent the more tender plants and half-hardy shrubs have suffered. Our usual summer visitors of the feathered tribe arrived not quite a week later than last year. Swallows were seen on the 9th, the nightingale heard on the 10th, and the cuckoo on the 11th of this month. I cut a dish of 100 Asparagus on Friday April 17th, whereas I cut last year on March 31st. If we are fortunate enough not to have any late spring frost everything looks promising for a good season of vegetables and fruits. The spring seeds are germinating far better than one could have expected after the bad harvesting season last year."

— COATING HOT-WATER MAINS.—In reply to Mr. W. Bardney's inquiry in "Notes and Gleanings" (*Journal of Horticulture*, April 11th) respecting the cost of coating hot-water mains with asbestos and other compounds. This can be done at a cost of 6d. per foot superficial measurement, and undoubtedly under any circumstances would effect a great saving in the cost of fuel. I regret I am not in a position to give Mr. Bardney an estimate of the amount of fuel that would be saved, as so much depends on the distance the mains have to be conveyed. As a matter of course, the greater the distance the greater would be the saving. In the case of a steam boiler the difference between an unprotected and a coated one would be about 10 to 15 per cent. in fuel, and I presume the saving would be much greater in that of greenhouse boiler and mains, as it frequently happens that great lengths of the latter are often exposed. This is a subject which deserves more attention than it has hitherto received.—W. I. D.

— EASTER DECORATIONS.—The tendency to use plants in flower for house and church decoration at Easter was, says an American contemporary, stronger this year than ever, and was conspicuously manifested in the increased size of the specimens offered. Of course, there was a great array of Lilies, and plants were valued according to the number of flowers they carried, each flower being valued at 25 cents. There were Dutch bulbous plants, Hyacinths, Tulips, and Daffodils in abundance; Violets and Cyclamens in pots, and Spiræas in great quantities, including some of the newer varieties under various names. Among many other shrubs forced into bloom Hydrangeas, Cytisus, and Azaleas were far the most numerous. Singularly beautiful plants of *Acacia paradoxa* commanded a ready sale. Among the other flowering shrubs specimens of the Tree Pæony *Reine Elizabeth* were very effective. Our native Laurel, *Kalmia latifolia*, *Andromeda speciosa* and *A. japonica*, Lilacs, Snowballs, *Boronias*, *Metrosideros* were more rarely seen, and the price for these varied according to their quality and size.

— VIOLETS IN THE WINTER.—Such a structure as that suggested by Mr. Haggart on page 344 cannot but have its advantages over an ordinary two-light garden frame if we are to reckon upon having such severe weather as that passed through during the past winter. I fear, though, in ordinary cultivators' hands much red spider would be the result with such a quantity of piping and such a small volume of air above the soil. If Mr. Haggart were to confine himself to a single row of 3-inch pipes around the pit, and not a flow and return both back and front, I think then the suggestion has much to recommend it. I do not agree with having a hotbed under the plants, no matter how slight. This is quite unnecessary. A space, however, for giving efficient drainage is necessary. With the aid of hot-water pipes the difficulty of opening the lights during 30° frost is much minimised of course, but some care will be necessary not to employ the heat too freely. In the hands of such an able cultivator, however, as Mr. Haggart I have no doubt about the results. Growing extra plants in boxes on a shelf in a vinery or Peach house is a good plan to save the opening of the frame during exceptionally sharp weather.—E. MOLYNEUX.

— ELECTRIC HEAT has been successfully applied to the thawing of frozen water pipes. A wire is run into the pipe until it meets the obstruction, and the current is then turned on.

— KEW GARDENS.—Orchids at Kew, says a contemporary, always exert a fascinating influence over the numerous visitors to the Gardens, and at the present time the display is large enough to be of considerable interest to orchidologists. A few days ago there were about 120 distinct species of Orchids in flower in the two houses devoted to Orchid culture, and besides these there were a few hybrids and several varieties flowering.

— VEGETABLE AND ANIMAL PARASITES.—These are now known to be the immediate cause of many of the diseases of plants and animals, but we do not yet know what are the direct causes which set these low organisms in motion. The germs of these little organisms seem to be continuously existent in localities where they have been once known. But they are not active, and consequently not observed, except when some peculiar combination of conditions occur. There is no difference in this respect between them and the common Mushroom. Spores, or reproductive organs of the Mushroom, will lie in the ground for many years in a perfectly torpid state. It is only when the exact temperature, the same degree of humidity, and quality of food, all meet together in conjunction, says "Meehans' Monthly," that the spores develop, and a full-blown Mushroom, with its cobwebby mycelium underground, rapidly grows. The millions of dollars spent by municipal corporations in "stamping out diseases" by various contrivances to destroy germs or spores are usually wasted, and though millions of germs may be destroyed, millions can never be reached, and these will make matters lively when the conjunctive conditions meet. Fortunately, Nature does not permit this often. The true effort lies in preventing the meeting of these conditions for germination, but until science tells us just what they are we are powerless. But it will come in time.

— WAKEFIELD PAXTON SOCIETY.—At the usual weekly meeting of the members of the Paxton Society held on the 20th inst., Mr. J. G. Brown of Cutwood was in the chair, and Mr. Herbert Chapman occupied the vice-chair. There was about an average attendance. A very useful, seasonable, and practical paper on "Rhubarb" was read by Mr. W. Hudson, head gardener to Mr. W. T. Marriott, J.P., of Sandal Grange, one of the oldest and most active members of the Society. Mr. Hudson dealt with his subject in a thorough and most interesting manner, and his lecture was attentively listened to and warmly applauded. The essayist not only dealt with the question of the general cultivation of Rhubarb, showing how to grow it in the open garden and how to force it, but he referred to some of the many uses to which Rhubarb may be put, and also alluded to some of its medicinal properties. Mr. Hudson commenced his lecture by describing the best mode of planting with Rhubarb in early spring a plot of ground which had previously been well and deeply dug or trenched, and liberally manured. If the new plantation was to be made from old roots these must be divided with a spade into separate parts, no matter how small if only a plump and healthy crown was retained to each portion. The divided portions should be planted singly, 3 feet apart every way, and during the summer they should be encouraged to grow by waterings of liquid manure. Where plants from seeds were used no division of the roots was necessary, and such plants might be placed 18 inches apart each way, and at the end of the second year's growth every other plant might be taken out for forcing. It was not wise to pull too freely the second year, but after that, if it was well attended to, they could scarcely hurt it by pulling. If they adopted annual planting, on however small a scale, it would be advantageous both in productiveness and flavour, and also in earliness and size of stalks. He recommended the following three varieties to follow each other in succession:—Prince Albert, Linnæus, and Victoria. Of course, artificial means had to be resorted to in order that early productiveness and the desired colour might be obtained. There were many ways in forcing Rhubarb. One was to place large pots over the roots as they were planted in the open ground, and then to cover the pots with a quantity of hot manure; but the practice most generally adopted was to dig up any number of roots and plant them in ranges of pits or frames heated by hot manure, hot-water pipes, or flues. Rhubarb made excellent wine, and he would not be surprised to hear that Rhubarb was responsible for a great deal of what is sold as champagne, and he would rather have good Rhubarb wine than bad champagne. A long and most interesting discussion ensued, in which several of the members took part, and then a very hearty vote of thanks was accorded to Mr. Hudson for his excellent paper.



ROSE SHOW FIXTURES FOR 1895.

- June 19th (Wednesday).—York.*
 „ 20th (Thursday).—Colchester.
 „ 25th (Tuesday).—Isle of Wight (Cowes).
 „ 26th (Wednesday).—Richmond.
 „ 27th (Thursday).—Gloucester (N.R.S.) and Canterbury.
 „ 28th (Friday).—Exeter.
 „ 29th (Saturday).—Windsor.
 July 2nd (Tuesday).—Diss and Sutton.
 „ 3rd (Wednesday).—Brockham, Croydon, Ealing, Farningham, Lee,† and Sittingbourne
 „ 4th (Thursday).—Eltham and Norwich.
 „ 6th (Saturday).—Crystal Palace (N.R.S.).
 „ 9th (Tuesday).—Westminster (R.H.S.), and Wolverhampton.*
 „ 10th (Wednesday).—Chelmsford, Hitchin, and Redhill (Reigate).
 „ 11th (Thursday).—Helensburgh, Woodbridge, and Worksop.
 „ 17th (Wednesday).—Derby (N.R.S.).
 „ 18th (Thursday).—Halifax.
 „ 20th (Saturday).—Manchester.
 „ 23rd (Tuesday).—Tibshelf.
 „ 24th (Wednesday).—Chesterfield and Newcastle-on-Tyne.*
 „ 25th (Thursday).—Trentham.

* A show lasting three days. † A show lasting two days.

I shall be glad to receive the dates of other Rose shows than those named above for publication in future lists.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

PERPETUAL CLUSTER ROSE.

ON his return from the battle of Waterloo a soldier brought with him to Blantyre a blush Monthly Rose, which bloomed in clusters during the winter. I remember seeing the Rose as it grew near the window where the old soldier lived, and near my house. I saw it in bloom about Christmas, but a gardener, who grew and propagated it, says it bloomed in the severest winters. Is this Rose known in England or to the trade?—W. T.

ROSES AND THE FROST.

MR. WILKINS' suggestion on page 318 might be followed with advantage. At the same time, one should give a word or two on the situation, soil, and state of their Roses before the hard winter arrived. In connection with this subject I find a few curious records on page 318. For example, "B." states that Aimée Vibert is not nearly so hardy as Céline Forestier, nor L'Ideale so frost-withstanding as W. A. Richardson. Now, I have both of these, in many forms and all sorts of positions. L'Ideale, Aimée Vibert, and Kaiserin Frederich are three of the hardiest Roses I grow.

I can fully sympathise with Mr. Wilkins and "W. R. Raillem," for almost all of my standards and half-standards are gone. Not more than 10 per cent. of the buds worked last year on these stocks, and which were full of promise in the early part of the winter, are now alive. Mr. Wilkins and "W. R. Raillem" protected, and, nevertheless, seem to have suffered equally as bad. In one bed of Teas on the Briar I find only three varieties that are not killed outright; and, singular to say, all of these are Hybrid Teas—Viscountess Folkestone, Caroline Testout, and Triomphe de Pernet père.

"B." apparently did not protect, and he certainly gives a more hopeful account than the others. So often have I seen those protected suffer worse, if any difference, that to my mind it is waste of time. Dwarfs may be earthed up to advantage, and are then safe as regards the most valuable bottom eyes.

I was glad to see a further comment on the Messrs. Cocker's plan of non-protection. When "B." mentions his loss with Roses planted in December, may we not also take a further hint, and never plant in the dead of the winter? I would rather wait until spring than plant after the ground has got cold. Even during an ordinary winter, December and January planted Roses have frequently failed to turn out so satisfactorily as those moved at a time when new growth would be soon commencing. I can confirm "B." as regards the great hardiness of Rosa rugosa, also Mosses, the Scotch, and other Briars; I have not a single loss among Hybrid Sweet Briars, both in plant and bud. Another exceptionally hardy Rose is the old York and Lancaster.

As a commencement of Mr. Wilkins' suggestion, I may say our soil is an ordinary loam with a little lime, the main positions two open fields on the summit of a hill, facing due north and south. Both in the open and in sheltered beds on the southern sides of hedges our standards and half-standards are a failure. Old and young plants, as well as dormant buds, have been terribly hit on this stock, and once more do we see the great advantage of dwarfs over standards in any form.—A. PIPER, *Uckfield.*

THE PROMISE OF HARDY FRUIT.

TAKING all kinds of fruit into consideration I think the promise of a crop is most favourable. Apples generally are well set with fruit buds, though there are exceptions. The trees exhibit a scarcity of promise. I allude more particularly to those which have been planted from three to five years. Trees of Warner's King of the age indicated are almost blossomless, whereas established trees are thickly clustered with plump flower buds. Other varieties might be named that are behaving in a similar way, notably King of the Pippins and Lady Henniker. The reverse is the case with Ecklinville and Cox's Orange Pippin; while Keswick Codlin, Lord Suffield, Worcester Pearmain, Lane's Prince Albert, Golden Spire, Hawthornden, and Alfriston are covered with blossom buds. Of the newer kinds Bismarck, Grenadier, and Lord Grosvenor promise well. Although it is a pleasing sight to see the trees wreathed in bloom, I do not always find that such trees yield the best crops of fruit.

Pears are not so abundant in their promise of fruit as last year, still taking them on the whole a fairly good Pear year may be expected. Plums, in spite of the heavy crops borne last year, bid fair to give satisfactory results. The trees are now expanding their flowers, and fine weather only is required to insure a full yield of fruit. Cherries in this neighbourhood never fail to give abundance of fruit, and this year is not expected to prove an exception to the rule. Peaches have flowered freely, and are setting well; but the continuance of rain, with the absence of sun, is making itself felt in the paleness in colour of the leaves. Trees growing in heavy, retentive soil quickly exhibit traces of this defect.

Gooseberries and Currants promise well, the trees of the former as yet showing no signs of red spider attacks. Raspberries have suffered very much from the severe frost. Many of last year's canes are injured and some killed down to within a few inches of the ground. It is surprising to see how well the Strawberry fields look in such a short time after the severe winter. A month ago many of the Strawberry plantations looked as though they were killed outright. Where the plants were neglected in trimming off the old leaves for some months after the fruit was gathered they appear to have suffered the most. Such an occurrence should answer as a guide in future. Early trimming of the leaves not required has much to recommend it, especially when followed by such weather as that experienced.—E. MOLYNEUX, *Hants.*

TROPÆOLUM TUBEROSUM.

I SEND you tubers of this Tropæolum thinking you might like to plant them. The plants are well adapted for trailing over trellises or archways in any sunny position. The bright orange and scarlet flowers are very conspicuous in the autumn. What the Flame Plant, Tropæolum speciosum, is to the north this species is in the south, only the former requires a cool aspect and the latter an open sunny position. They do best in light rich soil, and grow very rapidly, reaching a height of 8 or 10 feet, or they look well trained over some Pea boughs, when they will interlace and form a dense bush. The tubers should be taken up in the autumn and stored in sand secured from frost. Although in the island here they remain in the soil as a rule, yet they are not safe in such a severe winter as the past one has been.—C. ORCHARD, *Bembridge, Isle of Wight.*

[We are obliged by the tubers, which are in themselves attractive, as will be seen by the engraving of one of them, associated with a flowering spray. We have often answered inquiries in reference to this old plant, which seems to be worth trying in suitable positions as suggested by Mr. Orchard. According to the "Gardeners' Dictionary" Tropæolum tuberosum was introduced from Peru in 1836. It seems to have been first grown in a spindling manner in pots in green-houses, though it may have been a year or two sooner, as we find recorded in "Paxton's Magazine of Botany" that "in the early part of the summer of 1837, Mr. Young of Epsom, from a laudable desire of ascertaining the true habits and disposition of this plant, caused a number of tubers to be placed out in a bed in the open ground. As soon as they began to grow a few bushes were placed in the ground round each plant, and in the course of the summer they grew so vigorously and luxuriantly as completely to cover the bushes which had been placed for their support, and each plant formed a dense mass of verdure, 4 feet high, and full 6 feet in diameter. This, compared with the weak and stunted manner in which they had grown while kept in pots, was considered perfectly astonishing; still not the slightest disposition to produce flowers was discovered. However, about the latter end of September the flowers began to exhibit themselves from the axil of each leaf, and in the month of October each plant was most profusely studded with its elegant blossoms. It is worthy of remark that Nature seems to have furnished this plant with long flower stalks for the purpose of displaying the flowers, for every flower protruded itself beyond the leaves and branches, and stood out boldly and advantageously to

view. It is needless to add that the effect produced was beautiful beyond description.

"Some slight frosts occurring in the latter end of October, without injuring this plant, it was considered that it would prove quite impervious to the influence of cold; but a more severe one coming in November, the stems and foliage were completely destroyed, just as the flowers had attained to the highest degree of perfection, and it was

In reference to the last remark, Dr. Hogg records in the "Vegetable Kingdom" that the tubers of *T. tuberosum*, when cooked, are eaten by the natives of Peru. They have also been tried in this country, and been considered by some to form an agreeable dish. When boiled they are of a soft, pulpy substance, and in flavour resemble Seakale, mixed with the hot taste of garden Cress. Some who have thus used them state that they have a very delicate flavour, like the richest Asparagus,



FIG. 64.—TROPEOLUM TUBEROSUM.

then deemed prudent to remove the tubers from the soil, and preserve them through the winter in a dry and dormant state. This should teach us that, to insure an abundant display of flowers without subjecting the plants to injury from frost, they should be planted out early in the spring, in which case they would doubtless form a most brilliant and attractive feature in the flower garden during the summer and autumnal months. These tubers are also edible, and Mr. Young informs us that they are, when boiled, superior in flavour to any Potato, though they are disposed to be watery, and do not boil firm."

and superior to the Potato, but they are disposed to be watery and not to boil firm. It has been found that, when used immediately after being taken up, the tubers have a disagreeable taste, and to remedy this, in Bolivia, where the plant is called Ysano, they freeze them after they are cooked, and eat them when frozen. The ladies of La Paz are very fond of them, and in the season of the *taichas* large quantities are sopped in molasses and taken as refreshments during the heat of the day.

The tubers sent by Mr. Orchard are the finest we have seen. They have not been cooked, but planted.]

EXPRESS GRAPE GROWING.

ARTICLES in the last three *Journals* have proved very interesting to old Grape growers; how much more so then must they have been to the coming heroes in exhibiting campaigns?

Before saying a word or two on my success in rapidly fruiting Vines, I cannot help speaking of what I have seen respecting the statements of Mr. Wm. Innes. I think they only give a faint idea of the work he carried out. His vineries were well built on a field of good turf; his practical skill in erecting a powerful engine for raising water and warming the same with steam, with a knowledge of chemistry, and combining a healthy Vine manure for his own use, were great accessories to the success attending his labour. I think the last house erected by him the greatest marvel of skill in cultivating the Grape. He turned the first year of the house to good advantage in the form of an extraordinary crop of Tomatoes, grown on perpendicular wires while the Vines were growing, and took medals at London and Manchester. Perhaps Mr. Innes may kindly give us the history of cropping and planting this house.

Just a few words, though nothing new, on the quick cropping of Muscats, and having splendid ripe Grapes five months after planting. I selected extra strong canes from Mr. Pearson's stock in the autumn, started them early in the pots, made the border ready, having the house moist and warm, and planted early in March (now fifteen years back). They broke regularly, every eye showing fruit. The Vines were allowed to grow their full length as purchased, carrying four bunches to a rod, ripening grand finished fruit; with an extra row of supernumeraries in pots, fruiting well, the new house had a full crop. I was induced to cut back two rods to 3 feet the following year; they never came up to the mark again, but with the rods left intact a heavy crop resulted, many bunches weighing 6 lbs., and admirably coloured. The Vines are doing well to this day. So much for the non-cutting back method.

To replenish Vines take down a rod when started and showing the bunches; layer as many spurs as convenient in pots, with the bunch of Grapes attached. In a month's time you have rods 6 to 9 feet getting well established in the pots; after two months the rods are ready for severing from the parent, and planting in permanent quarters for a full crop the following year. I have a Black Hamburgh with four good rods so raised now, and fruit for thinning, that will soon be put in permanent places.

With all our express Grape growing we cannot cope with our veterans. Mr. Hill, Keele Hall Gardens, had in April, 1864, an early house of Grapes which sold for 21s. per lb., and in April, 1863, early house of Grapes which sold for 25s. per lb.

Statistics taken for Mr. Hill when I was with him in these good days, 1853 to 1863, are as follows:—

Grapes.—Royal Horticultural Society.—Twenty-two first prizes, eleven seconds, six thirds, large silver medal, silver Knightian medal, two first-class certificates.

Grapes.—Royal Botanic, Regent's Park, 1853 to 1863.—Twenty-three firsts, eight seconds, thirteen third prizes, and Mr. Ivery's prize.

Crystal Palace Company, 1855 to 1863.—Fourteen firsts, seven seconds, two thirds, extra, Lady Downe's. He had also first prizes at the shows of the British Pomological Society in 1859 and 1860 for collections of Grapes.—GEO. BOLAS.

ONE of your correspondents, Mr. Innes of Derby, referring to the article and photograph of one of my vineries in the *Journal of Horticulture*, pages 305 and 315, on the above subject, states that he planted a vinery August 11th and 12th with Vines raised from eyes in the month of March of the same year, and the Vines allowed to remain in the 3-inch pots they were rooted in until they were planted, and many of them were not more than 18 inches in length, and not stronger than a good straw, and yet they carried a very heavy crop, ten to twelve bunches on each Vine, the following year, averaging 2½ lbs., and that they were good enough for exhibition. I should like to say that I have had twenty-five years' experience with Vines, and I have not yet been able to get to the above standard, although I have had sixteen years of "Express Grape Growing," as you term it, and have been well satisfied with my results. But my experience is that to succeed we must keep the young Vines "going" early in the season, and have their growth finished about the time Mr. Innes planted his house, and then they have plenty of time to ripen the wood and plump the buds for the following year. I cannot see how Mr. Innes could possibly have a crop of first-class Grapes the following year after planting, for the Vines were allowed to be in 3-inch pots five months longer than they should have been, and being planted August 11th or 12th it seems to me that it would take them until the 1st of September to start into growth, and then we must allow them at least three months to fill the house with wood suitable to produce first-class Grapes. This lands us into the end of November or December. I should like to know how Mr. Innes ripened the supernumerary Vines at all when the roof must have been covered with the permanent Vines, which he states were cut back the following year. Has there been no mistake—an accidental mixing of years? Was it not 1889, instead of 1888, that the Vines did so well?—CHARLES COLEBROOK, *Grimsby*.

MUCH has been written in the *Journal* of late anent the wonderful results obtained in such short periods by various cultivators. It will be interesting to know how long the same Vines continue to give such results. For my part I must say I am sceptical about the life of such

Vines. I have noted more than one instance where wonderful crops were produced for a couple of years or so by extremely youthful Vines. Personally, I would rather see a continuation of a yearly good crop from what I call rationally managed Vines, and with a promise of certainty for the next fifteen or twenty years, than these mere "flashes in the pan" style of Grape-growing.

I have waited to see if any record would be published of Vines treated on the express system of culture and production that had given these wonderful results continuously for the last fifteen or twenty years. As yet I have not been gratified by such news. In the majority of cases the quotations have come from market growers. I wonder how many gardeners, with a limit of perhaps three vineries, there are who would like to risk the prospect of years of steady, regular crops for a few extraordinary results obtained by the system not in vogue when the likes of myself served our apprenticeships?

When I planted the three vineries under my charge sixteen years since last April I was bold enough to say I thought the Vines would last thirty years without renewing. Half that time has passed, and the Vines exhibit no diminution of crops; in fact, the house devoted to Muscats was better furnished with fruit last year than it had been in any previous season. The Vines were not allowed to cover their allotted space in an almost incredibly short space of time; but an abundant supply of fruit was maintained from the first by the aid of supernumeraries.

More than one vinery of my acquaintance that was planted in the same year as these have been replanted already, the result of attempting to obtain extra heavy crops. The cultivators of Grapes on the express system have much in favour of argument on their side as long as the same results continue. By our new fraternity I expect to be classed as one of the old fogies for penning this article. I, too, have some reason for argument—namely, results of the past as against prospective expectations.—E. M.

It is with pleasure that I comply with the courteous request of your correspondents, Messrs. J. J. Craven and "W. H. L.," in your last week's *Journal of Horticulture* (page 363). I will endeavour to relate my *modus operandi* as briefly as possible.

The Vine border in the house referred to was made up entirely of a strong clayey loam, cut from an old pasture, with the addition of six loads of river sand and one ton of our Fertilitas, all being well incorporated with the loam, and with this compost alone the inside border was completed before planting, and made up to the depth of 2½ feet. The garden roller was brought into use between the hot-water pipes, and where the roller could not be used the soil was thoroughly trodden, until the whole border was as solid as we could possibly make it.

When all was ready the Vines were turned out of their pots, partially shaken out, and the roots disentangled as well as we could under the circumstances, and laid in the soil to the depth of 4 or 5 inches, each Vine receiving in its turn (as the planting proceeded) a good soaking of tepid water. The planting being completed, which was all done in the cool of the evening, the Vines were shaded for several days during bright weather, and the house kept moderately close. The Vines were syringed three or four times a day until they began to show signs of moving, when the shading was gradually removed and the midday bath discontinued. An increased temperature was allowed both night and day, maintaining a night temperature of 70°, and from 85° to 90° during the day, closing the house early in the afternoon, raising the temperature 10° or 15°, using the syringe freely, and damping every particle of surface, and the vapour troughs were kept full of water.

The permanent Vines were stopped at the point where the supernumeraries reached the trellis. The latter were allowed to travel to the top of the house without interruption and were then stopped. In a few days the terminal buds were again on the move, and were allowed to grow unrestrictedly until the end of November, when these growths were gradually shortened. A brisk heat was maintained in the pipes and increased ventilation both day and night, with copious supplies of water and the free use of the syringe two or three times a week to preserve the foliage as long as possible until the wood was hard and brown. As soon as the Vines shed their foliage they were shortened as described in my last letter, and the house thrown open for about a month before starting it again.—W. INNES, *Derby*.

THE GLOXINIA.

Now that seedlings, owing to careful hybridising and selection, are superior to what they formerly were, we do not find so much time and labour spent on the propagation of named varieties. The seedlings from a good strain are far more healthy and vigorous in growth than any propagated from a special kind.

Do not waste time in sowing seeds from an indifferent strain; far better have a much less quantity for the same cost. Many plants are already raised, yet sowing may still be done. Obtain some good leaf mould and bake it, so as to kill all vermin. Fill some pots or pans about three parts up with coarse compost of any kind, free from worms and other pests. Surface this with the baked leaf soil, peat, and sand in about equal parts. Make the whole level and firm, then thoroughly water through a fine rose. We do not want to use water sooner than can be avoided after the seeds are sown. Sow very carefully, and never cover the seeds with soil—simply lay a sheet of shaded glass over the whole, and place in a light position away from direct sunshine.

Keep the pans dark until the seeds commence to germinate, gradually

admitting more light by moving away the shading. The seedlings must be grown robustly from the first, and are apt to damp if kept too wet or shaded. Directly they are large enough to handle prick them into other pots or pans containing similar soil. They will then be ready for placing in thumb pots, which operation should be performed so as to avoid any check to growth, and stand the pots on a shelf close to the glass and in full light. Turfy loam, leaf soil, peat, well-decayed manure from an old Melon bed, and sand in about equal parts is a good compost at this stage. I stand the pots in this stage in shallow trays. It is easy to have a little cocoa-nut fibre refuse in these, and it not only avoids any risk of sudden drought, but they are easily removed when needed.

Always pot fairly firm and keep the corms or crowns a little above the soil. As they fill these pots shift them into their flowering size at once. If this stage is arrived at by intermediate shifts it is next to impossible to avoid serious injury to the leaves, and however handsome the flowers may be, they are of little value without good foliage. A little bonemeal mixed with the same compost as before will be suitable for the final potting. Place one good crock over the hole, and then with a few cinders sufficient drainage is secured for so porous a compost as this. Moisture, but absolutely fresh, is a great item with the Gloxinia. As they progress a warm, and finally an ordinary greenhouse temperature, will suit them well. Weak liquid manure is a great help, but it must be clean and applied with care. Any stain on the foliage is disfiguring, and it is very difficult indeed to remove.

Now a word upon propagation in other ways. Select a few of the best of the seedlings—which will be in bloom from July to September—and remove a well-matured leaf from each. Cut through the midrib and chief lateral ribs of these in several spots, and then lay the leaf on a compost of sand and cocoa-nut fibre refuse, placing a little dry sand on the surface of each cut. Keep the fibre and sand only moderately moist, and young corms will soon appear at each severance. Generally the leaf decays away safely; if not, cut away the decaying part. After the whole of the leaf has ripened or decayed the corms may either be taken out of the fibre and put in sand, or left as they are until the next season. I choose the latter plan, and fill a pot with leaves from one plant and insert a small label with a brief description of the flower. Stand the dormant corms in a greenhouse temperature; any odd corner will do so long as they are kept sufficiently moist to avoid shrivelling. At the time when more seeds are sown let these corms be potted up into thumb pots and treated exactly as described for the seedlings in the same stage. They will afford an earlier supply than the latter of the same season, after which I would cast them on one side, except in the case of an extra good variety, which may be retained for leaf propagation again. They do not come so robust and free-growing after continued propagation as seedlings, and we can each season choose from the cream of the latter, while by this selection we are sure of some good kinds in the first supply.—CULTIVATOR.

ROYAL HORTICULTURAL SOCIETY.

APRIL 23RD.

SCIENTIFIC COMMITTEE.—Present: Professor Michael Foster, F.R.S. (in the chair), the Rev. W. Wilks, Drs. Hugo Müller, F.R.S., and M. T. Masters, F.R.S., with Messrs. McLachlan, F.R.S., Arthur Sutton, and G. F. Wilson, F.R.S.

Fasciated Lily.—From Baron Sir Ferdinand von Mueller came a photograph of a fasciated specimen of *Lilium auratum*, which bore 208, more or less, developed flowers.

Superposed Bulb in Leucium.—Dr. Lowe, Wimbledon, sent a specimen of *Leucium* with one bulb superposed on another. The older of the two bulbs had produced a cylindrical stem or rootstock about 1 inch in length, which bore at its extremity the new bulb, so that the two bulbs resembled beads strung on a necklace.

Cuscuta on Pelargonium.—Dr. Masters exhibited a plant of *Pelargonium* densely covered with a mass of long fine threads, which had been taken for aerial roots, but which were clearly the thread-like stems of a species of *Dodder*, probably introduced with the peat made use of in potting.

Androgynous Willow.—The same gentleman showed specimens of Willow catkins, the lower portions of which bore female flowers, the upper male flowers. Between the two were several flowers in which one stamen was perfect, whilst its neighbour in the same flower was half anther, half carpel. In some cases three catkins, one terminal, two lateral, merged from the same node. The catkins and the branches in the vicinity in some, but not in all cases, were marked by irregular swellings. These, when cut open, were each found to contain the larva probably of some beetle. It is thus a matter for speculation whether the irritation set up by the puncture of the insect had anything to do with the morphological changes observed.

Saintpaulia ionantha.—Dr. Masters showed flowers received from Mr. Ernst Benary of Erfurt, showing a considerable range of variation in size and in colour. With reference to this matter, the proposal to refer this East African genus to the Chinese *Petrocosmea* was mentioned, and the opinion of Mr. C. B. Clarke, the monographer of the order, was cited to the effect that until the ripe fruit of *Saintpaulia* was examined, and the numerous new forms of this order lately introduced, carefully investigated, it was considered better to retain for the present the genus *Saintpaulia*—though, in all probability, it would eventually have to be merged into some other genus.

Cattleya Lawrenceana.—Sir Trevor Lawrence, President Royal Horticultural Society, sent a raceme of this species bearing six flowers,

all of which presented the same peculiarity. The two lateral petals were joined at their inner edges, and adherent also to the back of the column.

Lindley Library.—Mr. Arthur Sutton obligingly presented to the Lindley Library a fine copy of L. Plukenet's "Opera Omnia," six volumes in two. Plukenet's volumes have an historical interest, as they serve to fix the date of introduction of many garden plants. Plukenet was botanist to Mary, Queen of William III., was Superintendent of the Gardens at Hampton Court, and at one time had a botanic garden of his own not far from the present site of the offices of the Royal Horticultural Society.



LATE-FLOWERING CHRYSANTHEMUMS.

THESE, for many purposes other than show, have a special value. For the table, conservatory, and Christmas decorations late Chrysanthemums will always be in demand. M. Delaux is sending out two new varieties of this description, which he says begin to flower in December, and are fully out by January 1st. They are called *Heliotrope* and *L'Hiver fleuri*. He has some others under trial, and it is to be hoped that before putting them into commerce they will be thoroughly proved. Another French grower, M. Sautel, promises some similar additions from his seed bed.

HAIRY CHRYSANTHEMUMS.

Notwithstanding the "boom" a few years ago for hairy Chrysanthemums, there does not seem to have been sufficient encouragement offered to induce the raisers to produce new varieties in any great numbers. I notice, however, that the N.C.S. has a class for six varieties distinct, in which the following prizes are offered: Silver cup, presented by Mr. A. Pooley, for the first prize; silver medal, second prize, and a bronze medal third. Out of the novelties for this season the Americans do not offer any new seedlings of the hirsute section, and the French announce about eighteen. Most of the latter, however, are from an obscure grower, and will probably not reach this country at all.

NEW CHRYSANTHEMUMS FOR 1895.

The number of new French seedlings announced for distribution this spring is simply bewildering, and what is a noticeable feature in connection with the subject, is the increasing number of new seedling raisers. Tempted, perhaps, by the success of some of the older raisers, new ones are now coming forward every year to offer their productions to the Chrysanthemum importers and growers. I notice the names this year of seventeen different raisers, which is unusually large, and their contributions, consisting of early, late, hairy, and ordinary November flowering varieties, amount to 345 supposed new sorts. It is too tedious to calculate how much money is required to purchase the whole of these novelties, and I have no doubt it will not be attempted by any of the English trade, although we may expect to find the seedlings of such well-known growers as Messrs. Delaux, Calvat, Boucharlat, De Reydellet, and several others at the trade displays next autumn.

The Americans do not seem to be quite so prolific. Eight distributors in America announced the more modest number of sixty-seven varieties between them, with about a score of others which are stated to have been introduced from Japan. Mr. Spaulding takes the lead with twenty-five, but nearly all the other American raisers are content to put into commerce only about half a dozen each.—C.

THE CHRYSANTHEMUM IN ART.

At the Centenary Conference of the N.C.S. which was held in 1890, Mr. Haité, the well-known artist, read a paper under the above heading which will be found reported *in extenso* in the Journal for Dec. 4th of that year. Reviewing the various types of Chrysanthemums from an artistic standpoint, Mr. Haité specially draws attention to the Japanese form, which, both in England and Japan, is regarded by art workers as the kind of flower most suitable as a decorative subject.

I think, however, that the Japanese artist can have but very few examples of the true incurved Chrysanthemum, as we know it, at hand, because this type is essentially a European production. But even supposing they had, there is every probability they would not select it with the freedom with which they do the looser and less formal Japanese flowers. These certainly seem to appeal to the artistic temperament, and to the taste of the ladies much more forcibly than their stiff and formal rivals.

Japanese pottery, fans, textile fabrics, pictures, metal work and carvings, almost without exception, depict only blooms of the Japanese type. Sometimes, but very rarely, an Anemone may be found, but in any case where an incurving flower is represented the variety chosen is of the Comte de Germiny or Mrs. C. W. Wheeler build.

During the past few years the European artists, ever ready to seize new ideas, have borrowed very largely from their Japanese *confrères*, and anyone interested in the flower whose walks have taken them in the West End, and other busy places in London, cannot have

failed to remark how largely the popular Oriental flower has been used in what may be termed commercial art work in England. Wall papers, cretonnes, tapestry, China, pottery, and many other domestic and decorative articles have been the subjects of *Chrysanthemum* ornamentation by English designers, and in corroboration of Mr. Haité's remarks almost without exception has the subject been some form or other of the Japanese type.—P.

THROUGH THE PARKS.

WHAT the green oasis is to the weary traveller over the Saharan Desert, so are the parks and open spaces to the dwellers in this vast city, and fortunate it is that so many of them have been kept intact from the encroachment of the speculative builder. There, within easy distance of the busiest street or most crowded slum, are to be found sylvan scenes and rustic nooks, where the eye may rest on Nature in her most pleasing garb, or the mind be so enraptured with the quietness of the scene that it is possible almost for one to forget for the moment that one is in the midst of the metropolis.

London dwellers may well feel proud of the spacious parks, for it is in this respect that the metropolis has such an advantage over any other large city in England. A pleasing aspect about such as Hyde and Regent's Parks is that there is little of that stiff, artificial look which so characterises many such places. Nature seems to have special thought for the dwellers in the crowded city, for once within the gates may be seen huge forest trees growing in magnificent splendour, flowers blooming profusely, and birds singing, whilst the rich verdure of the grass on every side show that in spite of the smoky surroundings, that each and all are doing their share towards making the scene pleasant to all who see it.

Great is the credit due to the authorities for their commendable efforts in producing at the several seasons of the year brilliant and varied displays of flowers, which add so much to the brightness of the scene. A special feature in Hyde Park at the present time is the refulgent beauty of the bulbous flowers, a sight which has only to be seen to be appreciated. On entering at the Stanhope Gate a whole sheet of bloom presents itself, all discriminated with excellent taste, there being no erroneous mixing of colours, but all harmonising in pleasing unison.

Several of the beds are mixed, one with the fine *Narcissus* Sir Watkin and the rose-coloured Queen of the Hyacinths; another with *Narcissus* princeps and blue Hyacinth Couronne de Celle; and another with *Narcissus* Golden Spur and fancy coloured Pansies.

A pleasing effect is caused by a mass of white Hyacinth *alba maxima* surrounded by Pansies, and followed by a bed of *H. King of the Blues* and *N. Horsefieldi* mixed. White Hyacinth *La Grandesse* planted alone looks charming, as also does a bed of the yellow *N. maxima* mixed with the light blue Hyacinth *Regulus*. A special feature is a group of blue Hyacinth *Grand Maître*, the spikes and flowers being especially fine, and encircled by the rose coloured variety *Lord Macaulay*.

Again may be seen Hyacinth *L'Incomparable* in mass and surrounded by *H. alba maxima*. Especially worthy of mention are large beds, centered with light rose Hyacinth *Fabiola*, the white *La Grandesse* forming a band round. Many beds are devoted entirely to *Narcissi*, amongst others being *N. maximus* Emperor, Sir Watkin, and princeps. Hyacinths *La Grandesse*, Lord Derby, General Havelock, Mont Blanc, Charles Dickens, Lord Wellington, and the graceful habited *Mina*, may also be seen to great advantage.

Tulips, single and double, are strongly in evidence, their bright and varied colours rendering them especially noticeable. Among the doubles are beds of *Tournesol*, *Murillo*, *Gloria Solis*, and others; while the singles are represented by *Proserpine*, Queen of the Violets, *Chrysolara*, Cottage Maid, *La Belle Alliance*, Queen Victoria, *Duchesse de Parme*, *Joost Van Vondel*, and *Yellow Prince*, the last named emitting a pleasant scent.

A striking feature is several beds of single Tulips and *Doronicum plantagineum* mixed indiscriminately together, and blooming profusely.

Masses of the blue *Muscari botryoides* have a pretty effect, whilst Wallflowers, Daisies, Auriculas, Polyanthus, and Primroses are accorded prominent positions. The modest *Scilla sibirica* forms the groundwork for several beds planted with *Narcissi* *Horsefieldi* and Emperor.

The view presented in the flower garden in Regent's Park is one of equal merit; the beds are laid out with great taste, the bright and varied colours of the flowers being very effective. The beds are situated amid sweeping avenues of Horse Chestnut and Lime trees, all bursting forth in the bright verdure of the spring, and forming a bright contrast to the spread of flowers which form, as it were, a groundwork to the landscape. In spite of the ravages caused by the severe frost amongst the ornamental and other shrubs, many are now growing profusely, whilst the Flowering Currant looks very pretty amidst the dense green.

The modest *Saxifraga crassifolia* may be seen peeping from under the shrubs, whilst the grass banks, clothed with *Narcissi*, Hyacinths, and Tulips, all mixed in pleasing harmony, present a sight perhaps more charming than the more orthodox style of planting.

Other beds are formed of *Narcissi*, Auriculas, Tulips, *Sedum glaucum*, *Scilla sibirica*, *Sempervivum calcareum*, and others. Large vases, massed with single Tulips and others with yellow Wallflowers, are exceedingly pretty. Beds planted respectively with Primroses, *Doronicums*, Wallflowers, and Auriculas form a bright display, while one of the chief

features is formed by long borders planted indiscriminately with Hyacinths, Daffodils, *Dielytra spectabilis*, and Auriculas.

Beds of Hyacinth *gigantea* surrounded with white Violas are effective, as so are others with mixed Hyacinths in various colours. Especially noticeable is a large triangular bed of *N. Sir Watkin*, around which is a band of dark Wallflowers. Hyacinths *Chas. Dickens*, *Roht. Steiger*, and others are exceedingly fine, while amongst the Tulips bright displays of *Keyser's Kroon*, *Duchesse de Parme*, *Joost Van Vondel*, *Yellow Prince*, *Cottage Maid*, and *Proserpine* add much to the richness and variation of the display.

The bulbs flowering in the London parks this year were supplied by Messrs. Jas. Carter, High Holborn, London, the general excellence of which is a great credit to the firm, as the effect caused by them is one that it would be difficult to excel.

Long might one linger amid this maze of floral beauty, admiring this or comparing that; and in conclusion, it is not superfluous to add that great credit is due to those in charge for the exquisite manner in which the whole has been planned, and it is gratifying to know that without travelling outside the precincts of London everyone who is so disposed may, without any charge, feast his eyes on these charming gems of the spring.—WANDERER.

PLANT-FORMING ELEMENTS.

I READ with considerable interest the full and instructive article on the above subject which appeared in the last two issues of the *Journal of Horticulture*. I think it is well worth the careful study of all those who are interested in horticultural work, for there is much to be learnt from it. I noticed on page 332 Mr. G. Abbey says "argon" enters into the composition of plants. "Argon," being a newly discovered element, it would be interesting to know something more about it; but I failed to find anything further about it in the articles named. Mr. G. Abbey must have had some authority for the above statement, so perhaps he can explain "how it is assimilated by plants," for it would not do to assume that because argon and nitrogen are found so intimately connected together that they must consequently be both taken up by the plant. From recent experiments carried out by Professor Ramsey to see if "argon" could be found in plants or animals, he came to the conclusion that none was present, but that probably the method of analysis was not suitable for its detection.

Further investigations are needed, but until they have been carried out we must be satisfied with what Mr. G. Abbey can tell us on the subject.—W. DYKE, *Turnford, Herts.*

AMONGST THE DAFFODILS.

WHEN one reaches the Long Ditton Nurseries of Messrs. Barr & Son, Covent Garden, he is certainly amongst the Daffodils, for there are in all upwards of 15 acres devoted to this class of bulbous plants alone. The picture is a glorious and at the same time an impressive one, such as can only be seen at rare intervals. Great breadths of all the most popular varieties are seen, such, for instance, as a plot of *Barri conspicuus*, containing something like 20,000 bulbs. Impress this fact on the mind, and endeavour to realise what the effect will be when you stand in front of the beds, and some small idea may be formed of the display that is made. Then near at hand is a stretch of Emperor, with its stout foliage and handsome substantial flowers. Here, again, are about 12,000 roots, and the effect is perhaps even more striking than that of those previously named. Certainly, seen as they are at Ditton, Daffodils are well worthy of their popularity, and one might say of even more than is at present accorded to them.

The names of Barr and Daffodils may now safely be termed synonymous, and it is just possible that the compilers of the next big dictionary will so far recognise the fact as to place it on permanent record. There can be little doubt that if a letter was addressed to Messrs. Daffodil & Sons the postal authorities would promptly deliver it at 12, King Street, Covent Garden, and in doing so they would be right. If one might be allowed to coin a new word one might dub Mr. Peter Barr a daffodilist, because he has in collecting and studying them, made himself conversant with their history and with the varieties now grown to a remarkable extent. He has wandered (by no means aimlessly) over thousands of miles, ever on the look out for something new, and it is to these journeys that we are indebted for many extremely beautiful introductions. In this good work of finding new forms and studying old, Mr. Barr has found an able colleague and lieutenant in Mr. William Barr, who is at present in Cornwall investigating the flowers of the Scilly Islands. As all lovers of Daffodils thirst for novelties, and knowing that the Messrs. Barr will continue their energetic labours, they may be sure of having their wishes gratified to a good extent, and in the furthering of the popularity and increasing the cultivation of these plants the firm will doubtless secure the reward it so very richly deserves.

It is a well-known fact that if a certain variety of Potato be grown on the same land year after year it will deteriorate, and it is equally well known that if the same sort is planted on entirely new ground, providing, as it will, a change of food, it will improve sometimes to a very remarkable extent. This fact, as Messrs. Barr have proved, is just as applicable to *Narcissi*, and with admirable foresight they have taken an area of land in the southern part of Lincolnshire where Daffodils

are known to thrive with the sole object of improving their stock, not so much numerically as in point of quality. This was first done as an experiment, and it turned out most successful. The plan followed is to plant the bulbs first at Ditton and then to remove them to Lincolnshire, a system that has been found to improve them in every respect. Of course, this system entails much additional labour and expense, but it will doubtless prove remunerative in the long run. We can hope so, at any rate.

As it is no joke for the interested visitor to have to wander over some fifteen acres of ground to see his favourites, and then stand a chance of missing some of the best, provision has been made to obviate all this. What may be called sample beds have been made up, comprising examples of all the varieties grown in the nursery, and these are situated immediately on entering. This is indeed a boon, especially when a visitor is very much pushed for time, and it is important that a certain train be caught. Of some varieties there are several rows, whereas of others there will be found only one. This system may be termed unique, inasmuch as it provides very great advantages to the examiner without a single disadvantage. Of course after the visitor has gone closely over these samples he can then walk round the beds and take general glances at the whole collection. Though only so few bulbs are planted in many cases in these beds, the effect is a very pleasing one.

To name all the sorts that are grown would be a very big task, and it would not serve any useful purpose, as so many of them have been widely grown for a number of years, but perhaps a short selection may prove acceptable to those readers of the Journal who have not been, and will not be, able to see for themselves. The various sections, it is perhaps needless to add, are all largely represented, and it will not be attempted here to classify them to any particular extent, as such details may be readily procured from the very comprehensive catalogue issued by the firm.

First on the list must come the superb Weardale Perfection, which was figured in the *Journal of Horticulture* for April 19th, 1894. It is certainly one of the most massive of the large trumpet section, though it is closely followed by Glory of Leyden, which with the first named should on no account be omitted from a collection, at any rate not from one that has aspirations to perfection. Belonging to this group is Madame de Graaff, a bloom of which is represented in fig. 65. This variety is of a white or very pale sulphur colour. Such varieties as Emperor, Empress, Horsefieldi, and Her Majesty are so well known and so highly appreciated that they need no words here. P. R. Barr, a seedling from Emperor, is very beautiful, and is securing numerous admirers.



FIG. 65.—NARCISSUS MADAME DE GRAAFF.

Belonging to another section, and different in every way, is Leedsi Beatrice, one of the most chastely beautiful varieties in commerce. The flower (see woodcut, fig. 66) is almost pure white in colour, and it should receive more attention than is the case at present. Two other Leedsis of merit are Ceres and Gem, each of which might well be grown. Of the Barris probably conspicuous is the best, but another charming form is albus Sensation.

Of the incomparabilis group Sir Watkin is usually accorded the place of honour, but another equally worthy of mention is Gloria Mundi, which is not quite so large and has a much flatter cup. Other grand sorts are sulphureus Hogarth, Jas. Bateman, and Duchess of Westminster. Besides these there are the ever popular Poet's Narcissi and

the charming double forms, but sufficient have now been mentioned to give an idea of how diversified is the collection.

Tulips and Hyacinths have also made a glorious display at these nurseries, but they are now fast getting past, such being, in fact, the case with the Narcissi, all having been so severely injured by the tremendously heavy rains to which they have been subjected.—H.

FLOORS CASTLE GARDENS.

THROUGH the kindness of Her Grace the Duchess of Roxburghe I have twice had the privilege of visiting the famous gardens and grounds of Floors Castle, in Roxburghshire, one of the noblest and most impressive of the many grand mansion houses of which Scotland can boast. It was erected from designs of Sir John Vanbrugh, the celebrated



FIG. 66.—NARCISSUS LEEDSI BEATRICE.

architect, in 1718, receiving, however, at a comparatively modern date those elaborate and extensive additions, designed by Playfair of Edinburgh, which have made it the palatial edifice it is now. Floors Castle, as its original name of Fleurs implies, wears all its weight of majesty lightly, like a flower.

One of the finest views of this charming residence of the Duke of Roxburghe is obtained from Kelso Bridge, where the silvery Teviot unites its waters with those of the classical Tweed. The prospect from that point is exceedingly imposing, and lingers enduringly in the regions of memory. The marvellous combination there presented of rivers, woodlands, and distant mountains is one more easily remembered than described. Right in front is the town of Kelso, assuredly one of the most beautiful in Scotland, deriving much grace from its proximity to the ducal domain, with the noble fragment of its ancient Abbey, founded contemporaneously with those of Jedburgh and Melrose, towering above the houses to a height of 70 feet. The architecture of the Abbey is Saxon or early Norman, with the exception of the central arches, which are of Gothic design. To me it was more inspiring than even Melrose, so greatly glorified by the genius of Sir Walter Scott. I did not, however, contemplate the latter in the "dim moonlight," but in the glaring blaze of day.

When first I had the gratification of visiting Floors Castle and its romantic surroundings I was conducted through the gardens by the Minister of Kelso—a college friend of mine—whom I was visiting at that time. On the second occasion I had the congenial companionship of Mr. Nicolas Barnes, now head gardener to His Grace the Duke of Westminster, who has promised to show me at some future, and I hope not far distant period, the floral glories of Eaton Hall.

The "artificial" system of garden decoration has often been condemned, but there can be no question that when the finest "Geraniums," Begonias, Lohelias, and Calceolarias are so splendidly combined and artistically contrasted as I saw them at Floors they constitute a uniquely superb effect. But, for such a combination of dazzling colours (amply relieved by surrounding foliage) the most faultless artistic intuition is necessitated, and that, as most of us know from observation, is seldom found.

What impressed me chiefly, however, during my visit to Floors Castle was the wealth of tropical flowers, several of which had conservatories to themselves. Some of the Orchids were especially attractive, among the finest of these being the *Cœlogynes*, *Cypripediums*, *Cattleyas*, and *Lælias*, including my own supreme favourite *purpurata*, *Aërides*, *Calanthes*, *Odontoglossums*, and exquisite *Oncidium*s. I did not notice that unique Orchid *Anguloa Clowesi*, of which I saw some very striking specimens last May at Mr. William Bull's establishment at Chelsea. For my first introduction to this singularly interesting variety I am indebted to another great orchidist, Mr. Chamberlain. For any

acquaintance I may possess with distinguished modern hybrids I am indebted to those consummate hybridists, Messrs. Sander of St. Albans.

I saw at Floors, on the occasion of my second visit, an immense variety of Palms, tropical Ferns of vast dimensions, Lapagerias, Camellias, and Gardenias; many of which were already past the flowering season, while others were in full bloom. The Duchess of Roxburghe, like Her Grace of Sutherland, is an ardent cultivator of Lilliums and Carnations; among the former being giganteum, auratum, chalcedonicum, longiflorum Harrissi, Martagon album, davuricum, and speciosum; these representing the following great families—viz., Archilirion, Eulirion, Martagon, and cardiocrinum. The Carnations cultivated at Floors Gardens are for the most part (with the exception of the imperial Malmaison, which luxuriates in the conservatories) border varieties, such as Germania, Gloire de Nancy, Crimson Clove, Pride of Penhurst, Raby Castle, and Mrs. Reynolds Hole. The last-mentioned variety has nothing to recommend it save its colour and dimensions, it has no fragrance, and invariably splits its calyx—a serious limitation. The Duchess of Roxburghe would do well to add to her extensive floral collections a considerable number of modern Roses of great merit for garden decoration.

The following are among the fruits which, at the period of my visit, were cultivated at Floors:—Black Hamburg, Muscat of Alexandria, Lady Downe's, Gros Colmar, and Gros Maroc Grapes; the Royal George, Gros Mignonne, and Prince of Wales Peaches; Lord Napier, Humboldt, Pine Apple, Elruge, and Victoria Nectarines; Jefferson, Green Gage, Transparent Gage (Rivers), Coe's Golden Drop, and Magnum Bonum Plums; May Duke, Morello, Frogmore, and Bigarreau Cherries; Moorpark and other Apricots; and all the leading species of Apples and Pears, among the latter being Williams' Bon Chrétien, Marie Louise, Pitmaston Duchess, Beurré Diel, Louise Bonne of Jersey, and Doyenné du Comice.

I might have spoken of the magnificent trees, many of them several centuries old, by which Floors Castle is on every side environed; of the intense historic interest of the surrounding scenes; of Kelso, and the early days of Sir Walter Scott, when his happiness was brightest, before Fame came to him with her awful penalties, and shattered his noble life; of Flodden Field and its Flowers of the Forest, and "Cheviot's Mountains Blue;" but it would require a pen more eloquent than mine to do justice to such themes, and therefore for the present I must bid Floors Castle and its classic surroundings a reluctant adieu.—DAVID R. WILLIAMSON.

STANSTEAD PARK NURSERIES.

CLOSELY as the name of Laing is associated with Tuberous-rooted Begonias it is almost, if not equally, as much so with Clivias and Caladiums, but these latter not having attained to such extraordinary popularity, the connection is not so widely recognised. Notwithstanding this it cannot be doubted that the ability and energy of the founder of the house of John Laing & Sons, together with the branches, have been indefatigably devoted to, as it were, popularising the two useful classes of plants named. New varieties have yearly been put in commerce, each in some respect superior to its predecessors, until to-day the collections have reached a point that could not even have been dreamed of a few years ago. The numerical advance has certainly been far more rapid with the Caladiums, but in point of quality the running has been very even.

These plants are, however, hardly comparable from a utilitarian aspect, as the Caladium is, as everyone knows, a foliage plant requiring heat and moisture to bring it to perfection, whilst the Clivia, or Imantophyllum as it used to be called, is a flowering plant that attains to the highest excellence in the greenhouse. Then, again, the points looked for in the one are entirely opposite to those in the other. The leafage of the Caladium must depend on its colour and surprising venation for its place in popular esteem; the Clivia, on the contrary, being entirely dependent on its flowers, and not on the bold, strap-like foliage which, however fine, would not of itself prove a sufficient recommendation to extensive culture. Let us then, after taking these things into consideration, go through the two collections, and see which are the most worthy of cultivation in each.

The Clivias coming first in the houses may be accepted as the whole and sole reason of putting them in the premier position in these notes. They are plants that ought certainly to be represented in every greenhouse, as they combine an exceptionally striking appearance with an unusually strong constitution, which renders them of great utility for decorative purposes where something of an imposing nature is desired. The culture, too, is of the simplest, so much so in fact as to permit of an inexperienced amateur growing them with almost an equal success as the professional gardener, who as a rule has so many more conveniences, as well as the benefits derivable from a thorough knowledge of the plants and their requirements. Not that the amateur, who perhaps has only one small house at his command, can have such large plants or maintain such an extended display of blossom as his brother, but the plants may be quite as creditable in every way, and productive of as much or perhaps more pleasure and interest. In addition to the ease of cultivation Clivias have another recommendation, and an important one—namely, freedom from insect enemies. This may well be called an important point, as there are so few greenhouse plants that are not subject to attacks in some form or another. Certainly Clivias are liable, but even if insects do establish themselves on the leaves these are of such a nature as to permit of speedy and effectual eradication by the aid of a sponge and some water.

Despite these merits Clivias cannot be said to be very largely grown. It is true we may see them in many gardens thriving remarkably well, but in some only one or two can be found, while in others again they are conspicuous by their absence, and that in places where they could be easily grown, and where they would certainly prove of great value. One might be inclined to think that the price was prohibitive, was it not known that they can be purchased at very low rates, much lower indeed than numerous other occupants of our greenhouses, that have not nearly so many good attributes to commend their culture. But we will not devote time and space to surmises, none of which may hit the nail on the head, but at once enter a protest against this neglect, and a plea for their greatly extended cultivation. We cannot expect the popularity of the Begonia or the Rose, but they might well be placed on a par with many other plants that could be mentioned, and it is highly probable that they would give quite as much satisfaction, and perhaps more than some.

As the varietal names of many may not be familiar to some readers it may be of use to mention a few of the best that were seen in Messrs. Laing's establishment a few days ago. Let it, however, be borne in mind that all are not enumerated, there being many others that might find as much favour as the undermentioned, so much naturally depending on individual taste in the matter of colouration. Bright in hue, of stout substance, with a sturdy habit of growth, the one named Firefly will probably please everyone. It is new, flowering this season for the first time, and this again will be a point in its favour to those whose thirst for novelties may be termed nothing short of insatiable. It is a grand addition, and its flowers are as near scarlet as any sort at present in commerce. Entirely distinct from the foregoing in respect to colour, age, and brightness is Sulphureum, which tells its own shade. Though old it must not be omitted, as it lends variety and thus enhances interest. The truss of Duke of Teck is very fine, the colour being a pleasing orange scarlet; while Duke of York, though of somewhat the same colour, is distinct in the shape of the flower, which is very handsome. Other noticeable varieties were Patrick Davidson, Mrs. Laing, Mrs. Joseph Broome, Beechdale, Scarlet Perfection, Lady Wolverton, Miss Ellen Terry, Ignea, Mrs. John Laing, and last, but by no means least, the Right Hon. Joseph Chamberlain, the merits of which were recognised in a practical manner at the last meeting of the Royal Horticultural Society by the assignment to it of an award of merit. Though brief this selection contains none but of good quality, and may be accepted *in toto* as worthy of close attention.

Turning now to the Caladiums, we find a class of plants providing a wider and more diversified range than those previously named, only in this case the whole of the beauty lies in the leafage. It is, perhaps, unfortunate that Caladiums must have, to grow them successfully, a good amount of artificial heat with a moist atmosphere. These essentials are obstacles to their culture by many amateurs, who may only have very limited accommodation, but if they have a warm structure it will never be complete in the foliage section until it contains a number of these very beautiful plants. The range of colouration covered by Caladiums is very wide, and the peculiar transparency of the leaf texture with the charming venation render them objects of interest and admiration. No other plants possess these attributes to such an extent, and hence no doubt their great popularity in establishments where the needful conveniences for growing them are at hand.

The Laing collection of these plants is a complete one, probably comprising all the sorts best worth growing, and it is kept up to date by the addition of any new variety of merit that may be introduced from time to time. To enumerate all the varieties would be almost an impossibility, and brief reference will therefore be made to those only that were the most conspicuous, either in respect of size or colouration of the foliage. It is difficult to know where to commence, but it is thought that general admiration will be accorded to L'Automne, which has rather long whitish-green leaves with lilac coloured spots and patches. It is very distinct, as also is Lymington, a green leaved variety with white markings. Other excellent kinds are James H. Laing, Mons. Degros, Madame Hubert Koechlin, Le Nain Rouge, Comte de Germiny, Comtesse de Maille, Golden Queen, and Ibis Rouge, and these, though few in number, must suffice in the present reference.

Though Clivias and Caladiums have received attention in these notes, there are many other plants of interest and beauty in the Stanstead Park Nurseries, and as they cannot be specified here it is recommended to readers that they pay a visit and make their own judgments, travelling either by the L.B. & S.C. Railway to Forest Hill, or the S.E. Railway to Catford Bridge, both of which are within easy walking distance.—NOMAD.

NEWCASTLE-ON-TYNE FLOWER SHOW.

THE Newcastle Spring Flower show was held on Wednesday and Thursday, April the 24th and 25th, at the Olympia. The entries, says a local contemporary, were fewer than usual, but the tables presented an attractive appearance, and the larger exhibits of tubed plants were in as gorgeous bloom as we are accustomed to see them on these occasions. The large plants in front of the platform in particular presented a mass of colour, consisting chiefly of white Deutzias and crimson Azaleas. There was also a very fine row of large plants under one of the galleries, the first prize, Countess of Haddington Rhododendron, being especially noteworthy. It was covered with almost perfect flowers of white and pale pink. It was sent by Mr. N. Black, gardener to Miss Pease, Darlington.

The fine lofty Palm sent by Mr. J. Kennedy, gardener to Mrs. Lange, Gateshead, attracted a lot of attention at the end of the hall nearest the doorway. It was flanked on either side by the first and second prize stands of plants exhibited respectively by Mr. J. Wood, gardener to Mr. Hopper, Morpeth, and Mr. J. McIntyre, gardener to Mrs. Pease, Darlington. Mr. Wood's stand showed a brilliant surface of variegated colours, prominent among which were those of varieties of Orchids, Crotons, and Amaryllis. Mr. McIntyre's stand was well arranged, but in less striking tones than the other.

Near the platform Messrs. Wm. Fell & Co., nurserymen, Hexham, exhibited, not for competition, a very fine collection of Ghent Azaleas and Azalea mollis, Tulips, cut Narcissi (including nearly all the varieties in cultivation), and Palms. Messrs. Robert P. Kerr & Sons, nurserymen, Liverpool, had on exhibition a striking lot of new Amaryllis seedlings in various hues of red. Other lots not for competition included a pretty stand of cut flowers by Mr. W. Handysides, Newcastle; a stand of choice Ferns by Messrs. W. Edwards & Son, Nottingham; and a stand of preserved Palms from Messrs. Carnegie & Co., Newcastle. Mr. John Forbes, nurseryman, Hawick, sent a fine collection of Polyanthus and Primulas.

There was but a moderate show of Spiræas, Cinerarias, and Dielytras, but in the same line of tables was a very numerous representation of Hyacinths, the greater part of one side of a long table being occupied by them. While they presented a very pleasing picture to the eye in those pretty and delicate tints that develop so charmingly out of the bulbs, they were not seen at quite their best. Last year's wet season has prevented them ripening properly. The display of yellow Narcissus was good. There was a small but choice selection of Orchids and a few lots of Roses of the yellow Maréchal Niel variety hardly so fully developed as usual. There was a good show of Tulips and Cyclamens.

By far the greatest attention was paid, as usual, to the bouquets and epergnes in the cut flower section. Here the display was very fine. The first prize for bridal bouquets was secured by Messrs. Perkins and Sons, Coventry, the well-known artistes in this department of floriculture, with a charming composition, in which white Orchids and Gardenias were the chief items. The same firm was first for the coloured hand bouquet, which was made up of crimson, yellow, and shades of pink in Roses and Orchids. Mr. F. Edmundson, Newcastle, took first place in the epergne competition, and obtained the Banksian medal of the Royal Horticultural Society. His epergne consisted of a base of red, yellow, and white Roses, surmounted chiefly by Orchids, Lily of the Valley, Marguerites, and sprays of feathery grass.

BIRMINGHAM DAFFODIL SHOW.

APRIL 24TH AND 25TH.

THIS, the third annual Narcissus exhibition of the Birmingham Botanical and Horticultural Society, was pronounced to be the largest and finest of its kind ever held in Birmingham, filling, as it did, all available space in the large exhibition conservatory and the new annexe. Unfortunately, however, the unpropitious state of the weather, especially on the second day, proved inimical to a good attendance of visitors.

Mention alone of the names of several of the leading firms and amateur Narcissi growers in this country and from the Continent as contributors to the show would be sufficient to indicate the quality and extent of the productions. The Rev. G. H. Engleheart's new seedling Ajax, Ellen Willmott, was awarded the silver medal as the best flower in the show.

Accompanying this now champion of Daffodils the same exhibitor was awarded a special certificate for his new incomparabilis, Dorothy Yorke, similar to the Lulworth, but with a wider open cup of intense glowing red colour, and also for his chaste and elegant Snowdrop. Altogether his group of beautiful hybrids proved to be one of the strongest attractions in the show.

The silver medal offered for the best collection of Narcissi was strongly contested for by Messrs. J. R. Pearson & Sons, Nottingham, and the Rev. S. Eugene Bourne, Lincoln, and so nearly alike were they in the opinion of the judges that eventually they were awarded equal prizes. As worthy of notice in this collection mention may be made of the splendid Weardale Perfection, the superb Lulworth, Captain Nelson, Gloria Mundi, Duchess of Westminster, Flora Wilson, C. J. Backhouse, Queen Sophia, Madame de Graaff, the magnificent Glory of Leyden, and the beautiful cream-coloured and chaste Mary Magdalene de Graaff, whilst the cream of the Nottingham collection comprised such as Katherine Spurrell, J. B. M. Camm, Golden Spur, Glory of Leyden, Weardale Perfection (a single bloom), and the beautiful Mary Anderson. All of the above, including several other varieties in this splendid collection, were much admired. Messrs. De Graaff were represented by a collection of about thirty kinds of seedlings, including Glory of Leyden and Mrs. Pope. An exquisite "shower" bouquet, composed of a tasteful arrangement of Daffodils of the most delicate shades, was staged by Mr. Pope, and was deservedly awarded the first prize. This was closely followed in merit by a similar arrangement by Mr. Geo. Newell (gardener, W. G. H. Kenrick, Edgbaston); the third prize being awarded to the Rev. J. Jacob, Whitechurch, Salop.

Amongst local contributors, Mr. R. Sydenham was awarded a silver medal for a collection of Narcissi, Streptocarpus, and Uriah Pike Carnations in pots and in a cut state. To Professor Hillhouse a certificate of merit was awarded for a collection of Daffodils in pots. Mr. F. M. Mole, Edgbaston, exhibited an interesting collection of cut hardy

Daffodils. There was only one table decoration, a tasteful arrangement, by Miss L. Ashby Bolton, Edgbaston.

Silver medals were awarded to Messrs. P. Barr & Son, London; Messrs. James Veitch & Sons, Chelsea; and Mr. T. S. Ware, Tottenham, for large and grand stands of Narcissi. Messrs. Barr & Son also staged a showy group of Tulips and bulbous alpines. Special certificates were awarded to Messrs. J. Veitch for collections of blue Primroses and a fine plant of Alyssum saxatile citrinum. In this section Messrs. Pope & Son exhibited a group of very pretty new hybrid hardy Primroses and Auriculas.

Prizes were offered for Narcissi grown in pots, and which were fairly well shown by several exhibitors. The following is a list of prize-winners:—For a collection of Daffodils Messrs. Pearson & Son and the Rev. S. E. Bourne, equal; third prize, Mr. Wilson, South Cave, Yorkshire. In the remaining classes the chief prizewinners were the Rev. S. E. Bourne, Messrs. Pope & Son, Rev. J. Jacob, Messrs. G. M. Crawford, J. W. Wilson, W. J. Grant, Rev. S. P. Haydon, Miss Maybell, Messrs. W. G. Newell, M. Coyer, M. Sceany, Knight, Miss Lasky, and the Rev. G. H. Engleheart.

NATIONAL AURICULA SHOW.

APRIL 27TH.

THE northern section of this Society held its annual exhibition at the Botanical Gardens, Manchester, on Saturday last. Owing to the late spring none of the exhibitors could show their usual strength, and the display, particularly in the edged classes, was a disappointing one. Many exhibitors of note were unable to stage any plants at all, and were it not for the fact that Alpines were shown in large numbers, the show would have been a failure. Polyanthus were in better form than usual, and some seedlings of great refinement were shown by Messrs. Oldham and Thornley. Messrs. Beswick and Gorton showed seedling Alpines, showing marked improvements in this popular flower. Mr. Charles Turner, Slough, exhibited one beautiful variety, Roland, large in size, beautifully flat, good centre, and broad shaded edge of purple. Mr. Bentley exhibited some good seedling selfs, to one of which, Gerald, a deep maroon self, very circular and perfectly flat, a first-class certificate was given. The awards were as follows:—

Class A, six dissimilar Auriculas.—First, Mr. T. Lord, Todmorden, with selfs, Mrs. Potts and Brunette; grey edges, George Lightbody and Richard Headly; green edge, Rev. F. D. Horner; and white edge, Acme. Second, Miss Kirke Penson, Ludlow, with self Mrs. Douglas; grey edge, Lancashire Hero and George Lightbody; green edge, Col. Taylor; white edges, Heatherbell, and Beauty. Third, Mr. J. W. Bentley, Middleton, with selfs, Mrs. Potts, Carbuncle, and Miss Lewis (seedling); white edge, George Rudd; grey edge, Complete; green edge, Rev. F. D. Horner. Fourth, Mr. B. Simonite, Sheffield. Fifth, Mr. J. Dicken, Ashton-under-Lyne. Sixth, Mr. Stokes, Birmingham.

Class B, four dissimilar Auriculas.—First, Mr. T. Lord, with Mrs. Potts, Rev. F. D. Horner, George Lightbody, and Acme. Second, Miss Kyrke Penson, with Mrs. Potts, Rev. F. D. Horner, George Lightbody, and white edge John Simonite. Third, Mr. Bentley, with Mrs. Potts, Complete, Hibernia, green edge; and a seedling, white edge.

Class C, pair of Auriculas.—First, Mr. R. Gorton, Eccles, with Heatherbell and a seedling self. Second, Mr. W. H. Midgley, Halifax, with Rachel and Mrs. Potts. Third, Mr. G. Middleton, Prestwich, with Beauty and Mrs. Potts. Fourth, Mr. E. Shaw, Moston, with George Lightbody and Brunette. Fifth, Mr. J. Wood, Stalybridge, with Acme and Confidence. Sixth, Mr. Stelfox, Stalybridge. Seventh, Mr. Buckley, Stalybridge.

Class E, single plants, green edges.—First, Mr. Lord, with Rev. F. D. Horner. Second, Miss Kyrke Penson, with Lovely Ann. Third, Mr. Lord, with Prince of Greens. Fourth, Miss Kyrke Penson, with Colonel Taylor. Fifth, Mr. Bentley, with seedling. Sixth, Mr. Buckley, with Lancashire Hero. Seventh, Mr. Simonite, with James Hannaford. Eighth, Mr. Bentley, with Hibernia.

Class F, single plants, grey edges.—First, Miss Kyrke Penson with Dinham. Second, Miss Kyrke Penson with George Lightbody. Third, Mr. Middleton with Rachel. Fourth, Miss Kyrke Penson with Lancashire Hero. Fifth, Mr. Midgley with George Rudd. Sixth, Mr. Midgley with Alexander Meiklejohn. Seventh, Miss Kyrke Penson with C. E. Brown. Eighth, Mr. Wood with Confidence.

Class G, single plants, white edges.—First, Mr. Gorton with Heatherbell. Second, Mr. Lord with Acme. Third, Mr. Lord with Conservative. Fourth, Miss Kyrke Penson with True Briton. Fifth, Mr. Shaw with John Simonite. Sixth, Mr. Simonite with seedling. Seventh, Miss Kyrke Penson with Frank Simonite. Eighth, Mr. Lord with Beauty.

Class H, single plants, selfs.—First, Mr. Bentley with Gerald (seedling). Second, Mr. Bentley, with Sybil (seedling). Third, Mr. Lord with Mrs. Potts. Fourth, Mr. Bentley with Red Perfection (seedling). Fifth, Miss Kyrke Penson with Black Bess. Sixth, Mr. Bentley with Elsie (seedling). Seventh, Mr. Simonite with Flamingo. Eighth, Mr. Bentley with Carbuncle.

Premier Auricula of the show, George Lightbody, shown by Miss Kyrke Penson.

Class I, four dissimilar Alpines.—First, Mr. J. Beswick (Middleton) with Bright Eyes, Dr. Knott, John Allen, and another seedling. Second, Mr. R. Gorton with Emir and three seedlings. Third, Mr. Stokes with Mrs. Walker, John Allen, John Ashton, and Rev. Mr. Durnford. Fourth, Mr. Bentley with Chas. W. Needham, Mrs. Martin, John Allen,

and seedling. Fifth, Mr. C. Turner (Slough) with Mrs. Harry Turner, Countess, Roland, and Winnifred. Sixth, Mr. Clements. Seventh, Mr. Lees (Middleton).

Class J, pair of Alpines.—First, Mr. Stelfox with Diadem and seedling. Second, Mr. Wood with Diadem and seedling.

Class K, single plants, yellow centres.—First, Mr. Beswick with Rev. Mr. Darnford. Second, Mr. Beswick with John Allen. Third, Mr. Gorton with seedling. Fourth, Mr. Gorton with Emir. Fifth, Mr. Beswick with Percy. Sixth, Mr. Bentley with Chas. W. Needham.

Class L, single plants, white centres.—First, Mr. John Lees with seedling. Second, Mr. Turner with Winnifred. Third, Mr. Beswick with John Ashton. Fourth, Mr. Gorton with Stanley. Fifth, Mr. Beswick with seedling. Sixth, Mr. Gorton with Mrs. Beswick.

Premier Alpine of the show, Mr. Charles Turner with Rowland; and special prize for the best plant of John Allen, Mr. Bentley.

Class M, three dissimilar black-ground Polyanthus.—First, Mr. A. Oldham (Middleton) with Mrs. Brownhill and two seedlings. Second, Mr. Beswick with Mrs. Brownhill, Cheshire Favourite, and Lancashire Hero. Third, Mr. G. Thornley (Middleton) with Mrs. Brownhill, Exile, and Cheshire Favourite. Fourth, Mr. Middleton with Mrs. Brownhill, Exile, and Cheshire Favourite.

Class N, three dissimilar red ground Polyanthus.—First, Mr. Thornley, with Middleton Favourite, George IV., and Sidney Smith. Second, Mr. Middleton, with William IV., Lancer, and George IV. Third, Mr. Beswick, with Middleton Favourite, Exile, and William IV.

Class O, single plants, black grounds.—First, Mr. Thornley, with Mrs. Brownhill. Second, Mr. Oldham, with seedling. Third, Mr. Beswick, with Cheshire Favourite. Fourth, Mr. Thornley, with Exile. Fifth, Mr. Thornley, with Mrs. Holden.

Class P, single plants, red grounds.—First, Mr. Thornley, with seedling. Second, Mr. Thornley, with George IV. Third, Mr. Thornley, with William IV. Fourth, Mr. Thornley, with President. Fifth, Mr. Middleton, with Middleton Favourite.



HARDY FRUIT GARDEN.

Disbudding.—As soon as the fruit has set on Apricots, Peaches, and Nectarines proceed with the operation of disbudding superfluous growths, continuing it gradually until all unnecessary shoots are removed, and only those left which are essential for the continued productiveness of the trees, to provide for due extension, and to encourage the proper development of the fruit. Apples, Pears, Plums, and Cherries may have the growths thinned out immediately the latter are long enough, they having made considerable progress as a rule before the trees flower, but in this respect reference is made chiefly to Apples and Pears. It is best to take the earliest opportunities of disbudding, so that the process may be spread over short intervals without having recourse to frequent removals of large quantities at one operation. Severe disbudding disarranges the circulation of the sap to an extent which may prove an unfavourable if not a serious check. Therefore, for this reason alone, it is best to commence in time, the stronger the growths the greater is the check to the flow of sap. When the weather is cold, and growth makes no progress, cease disbudding until activity in the trees recommences. Attend first to the higher parts where the vigour is the greatest, and work downwards to the weaker, which may well be left later, not only without detriment, but with positive advantage.

Apricots.—As these bear fruit both on the young wood of the previous year and on spurs formed naturally disbudding should be proceeded with carefully, removing first the ill placed growths wherever situated. Those on the back and under sides may be dispensed with entirely. Any promising shoots on the front of permanent branches that appear likely to develop into natural spurs may be left, preventing other young shoots obstructing light from them. They need abundance of both light and air, that their development may be gradual, tending to fruitfulness. Leave a sufficiency of young shoots all over the trees as successional to take the place of the present bearing growths. One from the base of each of the latter is ample for this purpose, except where there are vacancies to fill, when two may be reserved. The shoot at the point of the bearing branch must be allowed to grow, so that sap is attracted to the fruit. It may, however, be pinched at the third or fourth good leaf lateral, the sub-lateral growth following being kept to one leaf.

Peaches and Nectarines.—As a rule with these, the bearing parts are kept confined to the young wood, natural spurs not forming so freely as with Apricots. Any that do form should be encouraged by giving them full exposure. They prove useful on the front part of branches, and at other places where it is necessary to dispense with annual growths, spurs may be developed, though crowding of these, as of other growths, must not be tolerated. The management of the young successional shoots reserved at the base of bearing wood is precisely the same as for Apricots. As the growths advance lay them in in the proper

direction. Shorten the leader of the bearing shoots when the lower leaves are large enough, reserving three of the best to assist the fruit swelling, which is of great importance. Without such aid the fruit drops prematurely, and the prospects of a crop are spoiled. Sometimes an error in shortening the bearing shoots at the winter pruning to a wrong bud may result in this, as it is impossible for wood growth to be produced from those parts containing only blossom buds. The first available wood growth may in such cases be made a leading shoot, and the part barren of wood buds shortened to where one starts, providing there is fruit below. If not, these details are unnecessary, the shoot being eligible for cutting out entirely, giving the space for the training of a successional shoot. Very strong growths issuing from dormant buds at any part may well be cut out before they assume the form of robbers, and utilise a large amount of sap, to the detriment of medium and weak wood. If well placed, however, for filling up vacancies existing reserve them, subduing their vigour somewhat by stopping, so as to cause the sending out of side growths, which will be of medium strength, and more likely to be fruitful.

Plums.—Wall trees require the shoots on the young wood regulating by disbudding the ill-placed and weakest, such as those on the back and under sides, reducing the front growths to fair distances apart. Any of these that do not assume the desirable characteristics of naturally developed spur growths should be induced to do so artificially by pinching to the third good leaf. Reserve a number of well placed shoots for growing full length, eventually laying them in to the wall without crowding.

Apples and Pears.—Growths are very freely produced from wall and restricted trees generally, a large proportion of which might be gradually reduced by disbudding. Besides growth from visible buds there is a number from quite dormant buds, both among the spurs and on the old branches, and it is these which choke the trees with useless, unfruitful growths. Their removal is extremely beneficial to those left, and simplifies the management later in the season. What will ultimately be spray in the centres of standard and half-standard trees may easily be rubbed or cut off now.

Vines on Walls.—If pruned on the spur system all growths beyond two must be removed from each spur, leaving one to bear fruit and the other as a successional shoot to be pruned to two buds the following winter. Where strong, well-ripened canes have been laid in some of the buds must be rubbed off. Bearing growths a foot apart are quite close enough to admit of the foliage having a proper share of light and air.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest Forced House.*—In the structure containing trees of Alexander or Waterloo and Early Louise Peaches, Advance and Early Rivers Nectarines, started about the middle of December, the fruit is ripening or ripe. The foliage must be kept dry, as water will act injuriously upon the fruit, but due supplies of water should be given at the roots, also the floor and other surfaces sprinkled twice a day in bright weather and occasionally in dull, so as to secure a fair amount of atmospheric moisture. This is essential to the health of the foliage, which otherwise would be injuriously affected and the wood and buds become prematurely ripened.

Trees of the standard varieties, such as Hale's Early, Royal George, Stirling Castle, Dymond, and Grosse Mignonne Peaches; Lord Napier, Darwin, and Elruge or Stanwick Elruge Nectarines that were started early in December are now taking their last swelling, and must not suffer for lack of water at the roots; the atmosphere ought also to be kept moist by frequently sprinkling the paths during the day, syringing the trees in the morning and again when closing the house. This will keep down red spider. It is imperative that the foliage be perfectly clean when the fruit commences to ripen, as the syringing must then cease over the trees, and the red spider, if any, will then so increase as to seriously imperil the current crop and prejudice that of the following year. The night temperature will be quite safe at 65° to 70°, and 5° less, though retarding the ripening, will not tax the energies of the trees so much as the higher temperatures. Leave the ventilators slightly open constantly at the upper part of the house for effecting a change of air and preventing the deposition of moisture upon the apex of the fruit. This is sometimes provocative of "spot" in the finest specimen, as the fungus and moisture are co-relative conditions. In the daytime 70° to 75° by artificial means, and 10° to 15° more with sun heat, will be suitable temperatures. Cease syringing the trees directly the fruit commences to soften for ripening, otherwise the skin will be disfigured and the quality deteriorated, often acquiring a musty flavour, due to presence of a minute fungus or mould.

The Stoning Period.—When the stones are being formed hurrying the trees may bring off the greater part of the fruit, and overcropping, even if stoning be effected, has a tendency to promote premature or imperfect ripening, the fruit not swelling freely, nor attaining good flavour. A temperature of 60° to 65° at night and 70° to 75° by day is as high as is safe until the stoning is completed; therefore avoid high night temperatures and sudden fluctuations by careful attention to ventilation. A little air left on at night will prevent the deposition of moisture on the foliage to any serious extent, increasing the ventilation when the sun shines upon the house in the morning, yet without lowering the temperature. Avoid fumigation or even vaporisation at this stage, as there is danger of crippling the foliage, and this gives a check such as sometimes causes the fruit to fall. Early closing is an advantage in promoting the advancement of the fruit, but it must not be done to the extent of undue excitement, nor be continued too late,

the temperature being allowed to decline with that of the sun. A little extra latitude given the growths will aid the fruit in the last swelling, but on no account allow foliage to be made that must be removed afterwards in large quantity, as this will give a check disastrous to the crop.

Trees Swelling their Fruits.—When the fruit is set it swells rapidly until the commencement of the stoning process, then remains comparatively stationary for a month or six weeks, and after that takes the final swelling for ripening. The first swelling is materially accelerated by a genial condition of the atmosphere, and the means employed to secure a good root action with a steady progressive development of the growths are best effected by a judicious and gradual regulation of the shoots by the process of disbudding. Thinning the fruit early and judiciously is essential to secure a good size in the first swelling, as the matter that would otherwise be expended in the fruit removed goes to those retained for the crop. Overcrowding must be avoided by judicious thinning, leaving no more growths than can have full exposure to light, removing any surplus gradually, so as not induce very vigorous growth in the shoots retained. Avoid a confined moist atmosphere, as this favours wood growth at the expense of the fruit. Ventilation must be such as to insure the thorough elaboration of the growths as made, keeping them short-jointed and sturdy. The more vigorous the tree the greater is the danger of the fruit being cast in stoning, and the mischief is aggravated by severe disbudding. In the last swelling after stoning the shoots should be well tied down, so that the fruit may have the benefit of all the light possible, and also be exposed to the sun. Moderate lateral extension materially assists the swelling of the fruit, care being taken that the principal foliage and fruit be not interfered with. Inside borders must be thoroughly watered when necessary, and extra nourishment given to weakly trees, either in the shape of approved fertilisers as top-dressings washed in or as liquid manure.

Figs.—*Early Forced Trees in Pots.*—The fruit of the large varieties, such as White Marseilles and Brown Turkey, is now ripening or ripe, and the supply of water at the roots being diminished, but not so as to affect the foliage, and if the syringing is discontinued, and a free circulation of warm, dry air afforded, leaving a little ventilation by the top lights constantly, excellent dishes of wholesome and luscious Figs will be produced. These drier conditions must be relative only, for moderate soil moisture and a congenial atmosphere are necessary for good results in the second crop, and may be secured by an occasional damping of the paths and walls in bright weather, or when the surfaces become dry. As soon as the first crop is gathered examine the trees for red spider and scale, syringing them with approved insecticides. Syringe twice a day, renew the top-dressings, and water at the roots with weak liquid manure. If the second crop be very abundant thin it by removing the fruits at the upper part of the growths, leaving that for the crop nearest to the base, being careful not to overtax the trees, as this will prejudice the first crop another season.

Early Forced Planted-out Trees.—The fruit is advancing rapidly for ripening, and in taking the last swelling is greatly benefited by thorough moisture at the roots without undue moisture arising from the soil. Mulching the surface after a good watering prevents evaporation to a great extent, encourages surface roots, and a good result in the second crop is assured under other favouring conditions. Cease syringing the trees when the fruit commences ripening, avoiding a superabundance of moisture about the house, having a little ventilation at the top constantly and a free circulation until the fruit is all gathered. Fruit intended for packing should be gathered slightly under ripe, so as to keep a few days and travel better than thoroughly ripe; but Figs for home use should be left until they have "tears" in the eyes, the skins cracked with lusciousness, and the head drooping; then they are delicious.

Succession Houses.—Attend to stopping side or spur growths at the fifth joint, and subsequently to one or two, but too many side shoots must not be encouraged, as the fruit and wood require light and air for maturation. Train in extensions their full length, thinning or removing strong growths, so as to admit light to those retained and to the fruit. Syringe the trees so as to prevent attacks of red spider, supplying water as necessary to maintain thorough moisture at the roots. Renew the mulching, especially where the trees are in restricted borders, and keep it moist so as to encourage surface rooting, and feed with top-dressings of the advertised fertilisers.

Strawberries in Pots.—There is always danger of red spider appearing on Strawberry plants forced in vineries and Peach houses, and it is soon transmitted to the Vines and Peach trees, becoming a source of much anxiety to the grower. Much can be done to prevent infection by removing the plants to another structure for finishing off, but there is not such convenience in many places, so that the arrangements are mainly confined to keeping up a succession of fruit. Crops ripening too fast may be retarded in a variety of ways for several days in case an extra supply is required for particular purposes. Turning the fruits from the sun, shifting the plants to a north house, or after the fruit is ripe removing the plants to an airy fruit room or even open shed, taking the usual precautions against birds, are some of the expedients, and others will suggest themselves. Plants intended for affording late supplies and grown in low houses or pits should have their flower-spikes thinned to the requisite number, and if the pots are stood on ashes, or even plunged, there will be a moist genial atmosphere highly favourable to the plants, provided the material is kept properly moist. Many excellent Strawberries are grown in frames, the plants being plunged in coal ashes well up to the glass, but leaving room for a circulation of air to play between the glass and the leaves of the plants, and the forward plants from these structures can always be selected to take the place of

those that are ripe or ripening. Duly supplied with water, and fed with liquid manure, very fine fruits are obtained in cold frames, and they come in a fortnight before outdoor supplies.

PLANT HOUSES.

Mignonette.—Plants that are flowering should not be allowed to seed or their growth will soon be brought to a standstill. When this is done the plants under good treatment continue to grow and yield fine spikes of bloom. When the pots are full of roots clear soot water should be given every time the plants need water. On no account must the plants be allowed to become dry, if they do the foliage will soon turn yellow and the spikes of bloom be very poor. Plants raised from seeds sown in 5-inch pots in September, liberally thinned to four or five plants and pegged down, may be allowed to come into flower if needed. The plants not needed to bloom may have the first flowers removed, and the spikes from the next growth will be finer. The plants should occupy a cool airy place and stand on some moisture-holding base. Where standards or large pyramids are required for autumn or winter, seeds of Parsons' White and Miles' Hybrid Spiral should be sown at once in 2½-inch pots, and covered with a little soil. When large enough the young plants should be thinned to one for the former and three or four for the latter. The plants should be grown for a time in an intermediate temperature, and then be transplanted to a cooler structure, never permitting them to become root-bound; 10-inch pots are suitable for flowering the plants in.

Rhodanthes.—When these are needed in good condition for decoration no time should be lost in transplanting the seedlings. The pots may be filled with loam, a little leaf mould, one-seventh of decayed manure and a little sand, being well drained and filled firmly to within an inch of the rim, the remainder being filled more lightly to prick the seedlings into. Water at once, shade from the sun until established, then give air freely to insure sturdy compact growth. This is a saving of seeds, but the easiest method is to sow in the pots in which they are to flower and then thin out the plants to half an inch apart when the seed leaves have been produced. The plants are more leggy, but this is not seen when grouped amongst other plants.

Primula obconica.—Seedlings should be ready for transplanting from the seed pans into boxes an inch apart in a compost of equal parts of leaf mould and loam with a liberal addition of sand. They should be placed in an intermediate temperature and shaded from the sun. These are most useful plants, and flower profusely during the winter. For the conservatory or for cutting they are invaluable. *P. obconica* is so easily raised from seeds that the old plants are not worth retaining.

Cinerarias.—A few of the best varieties may be selected for seed-bearing. Seedlings should be placed in pans or boxes 1½ inch apart until they are large enough for small pots. To grow these plants well they should never be kept in heat or their constitution will be ruined. A few more seeds may be sown in a pan in an intermediate temperature. As soon as the seeds have germinated, harden, and place in a cool house. Give all the light possible, but shade from bright sunshine.

Tuberous Begonias.—Tubers started early in boxes should be well established in their first pots, and ready for larger sizes. Large tubers may have a good shift, and the plants be hardened as soon as possible. They do well after potting in frames where gentle bottom heat can be given by the aid of fermenting material, and allowed gradually to cool down. If kept too long in a close confined atmosphere they grow soft, and the foliage is very liable to rust, and once the plants are attacked they rarely do well. Later plants should be gradually hardened, so that they will bear greenhouse treatment as early as possible. Seedlings in pans and boxes may be planted out 4 inches apart on the surface of a hotbed, on which 3 or 4 inches of old potting soil and Mushroom bed refuse has been spread. They grow rapidly under these circumstances, and the best can be lifted out with good balls and potted.

Clivias.—As these go out of flower repotting should be done without delay. Good varieties growing in 6-inch pots may, if necessary, be placed in others 2 inches larger, while those in large pots that have become crowded may be split and potted singly in 6 and 7-inch pots, in which they are most useful. It is not necessary to secure a quantity of roots with each portion, as they may be inserted similar to Pine suckers. After potting they need the most careful watering until they are rooting freely—too much will prove detrimental to them. The plants may be placed in any structure where they can be partially shaded from the sun, and a fair amount of moisture maintained. They will under these conditions soon form roots and establish themselves. Seedlings should be kept in a warm house, or the progress is slow at first. The plants do well in good loam, one-seventh of decayed manure and sand.

Carnation Miss Joliffe.—Young plants raised from layers last autumn should be placed in from 3 to 5-inch pots without delay. These may occupy a cool, light, airy frame, where they will grow without drawing. Water carefully, and pinch the shoots to induce the plants to branch. Cuttings rooted in thumb pots in heat under bell-glasses should be hardened as quickly as possible, and when the pots are filled with roots be placed into 3-inch. Cuttings may still be rooted of this or any other good winter flowering variety. Plants of Miss Joliffe, Winter Cheer, and others rooted late last year, and now in 6-inch pots, will be ready for placing into others 2 inches larger.

Pink Margaret.—These are exceedingly useful for autumn, winter, and spring flowering. Many of the flowers are sweet, large, double, and of the most beautiful colours. Seedlings should not be kept too long in a close confined atmosphere, as they do best under cool conditions, and once they are established in 2-inch pots the points of the plants should

be removed. To secure the best results they should be potted in 7 and 8-inch pots. In these sizes they continue to grow and flower, while in those of a smaller size they are brought to a standstill. There have been many complaints this year that during the winter the flower buds were blind. This is due to too low a temperature and to root activity being brought to a standstill.

THE BEE-KEEPER.

APIARIAN NOTES.

I FIND from my correspondence from many quarters there is a wide difference in the state of hives in sheltered localities from those in places exposed to the piercing March and April winds. Wintering has been more uniform, deaths occurring only where solid and damp floors are still in use. We are now having seasonable and genial weather with copious showers, which is causing a rapid growth; but it is not bee weather. So far as working is concerned it has all to be done by the bees yet. The Gooseberry blossom will soon be out, and the first fine day bees in fruit districts will get ample honey and pollen. Young bees are numerous in most hives, and in some of the most advanced drones are making their appearance. With fine weather during May they may be all more forward by the middle of June than they were in years past with mild Aprils and cold Mays.

The bee-keeper should have all things in readiness for the busy time—hives, supers, sections, foundation, and all necessary appliances. Have everything at hand, so that there will be no searching for anything when wanted.

If any hive shows signs of dilatoriness smell it, and see if it is not affected with foul brood, and take the necessary and precautionary measures to eradicate the disease. It is easy to distinguish between a healthy and diseased hive; the former has a warmish and sweet smell, the latter a harsh and pungent one. Let the examination of a suspected hive be made within doors, so that no *débris* may fall from the combs to the ground, nor bees from healthy hives come to rob them. These are all mischievous sources of infection. The *débris*, which may be cleared out of an infected hive by the bees, or that which may fall to the ground from the combs when manipulating, is eagerly gathered by bees of healthy hives.

Every piece of cloth or part of infected hives should be steeped in a solution of some strong disinfectant, and the bees subjected to three changes before putting them into a permanent clean hive. By pursuing a course similar to advice given thirty-four years ago I cleared my apiary of foul brood, and by a rational method of management since have not seen a single cell of it in any of my hives.—A LANARKSHIRE BEE-KEEPER.

FLOWERS FOR BEES.

THE change in the weather experienced during the past few days will prove beneficial to growing crops, but has not been favourable to the bees. Heavy showers of rain have fallen during the past forty-eight hours, and over 1 inch has been registered, which means 100 tons of water per acre. A great change in vegetation has taken place during the past ten days; trees that were dormant are now bursting into full leaf, and the bees will reap full benefit from the fast opening flowers in all directions.

A few notes on flowers frequented by bees at this time of the year may be of interest to bee-keepers, and may also cause them to be interested in the flowers chiefly in request for the benefit of their busy workers, and prepare them for another year. I find the majority of spring flowers are visited by bees, whereas later in the season when flowers are more numerous there are only certain kinds they work on. Even the modest Daisy growing by the roadside is frequented by the bees for the pollen obtained from its early opening flowers.

Arabis alba at the present time is a mass of white flowers. Bees are particularly fond of this plant, and it should be extensively planted by all bee-keepers and others who have the space at command. It looks well in large masses, and is very suitable for planting on a rockery, where it may remain undisturbed for years. It is also useful for edgings to borders or elsewhere, as it is perfectly hardy, having withstood the late severe winter with impunity. Its propagation is very simple. After the flowers are over, if an increase is desired, divide the plants and dibble them out a few inches apart in the open garden, and no more attention will be required, as they will root freely, otherwise they need not be disturbed for years, as they will go on increasing in size, and will not die off as some other similar plants will if not propagated yearly.

Myosotis dissitiflora is now a mass of bloom, and is one of the most beautiful of our early spring flowers. During the brief spells of sunshine bees have been very active on this variety. When planted in a mass and a few bulbs of yellow Tulips dotted between them have a very pretty effect. These may be propagated from divisions, similar to the *Arabis*, or from seed sown as soon as ripe, and the plants will bloom the following spring. Primroses, Violets, and Cowslips, common in the fields and hedgerows, but fast becoming extinct near our large towns, owing to the craze for obtaining plants. Bees may constantly be seen working on these plants. The Wood Anemone is another good bee flower. Many acres of woods are at the present time a mass of bloom, forming quite a picture, from which the bees derive great benefit.

Daffodils having flowered very freely this year, but are now nearly over, have been a great attraction to the bees for the pollen obtained from them. These may be planted in the grass, and if not disturbed will seed freely, which will in a few years bloom, forming large masses of their beautiful yellow flowers. Tulips of various colours also grow freely on the grass. The scarlet *Duc Van Thol*, when planted in conjunction with Daffodils, has a very pleasing effect. *Doronicums* are also useful for the purpose, and are very showy flowers at present in full bloom. These should be planted in masses, and are propagated by divisions of the root. The wild Cherry is abundant in the surrounding woods; large trees of these are now a mass of bloom. Bees work freely on them, obtaining a great amount of pollen and a little honey from the flowers. Several varieties of Willows are now in bloom and produce more pollen than any tree that I am acquainted with. These and the wild Cherry are a source of never-failing pleasure to the bees, and fortunate is the man who has a few trees of the different varieties planted near his apiary.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

J. P. Williams Bros., Heneratgoda, Ceylon.—*Tropical Seeds and Plants.*

T. S. Ware, Hale Farm Nurseries, Tottenham.—*List of Dahlias and Begonias.*



TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Exhibiting Pelargoniums (*G. H.*).—We think the variety you name would be open to disqualification in the class to which you allude.

Daffodil Baskets (*Gardener*).—We think your best method of obtaining quick information would be to write direct to Messrs. Barr and Son, King Street, Covent Garden, or other growers of these flowers for sale.

Conservatory (*L. D.*).—If a glass structure employed for the conservation and agreeable association of plants is detached from a dwelling-house, such isolation does not in the least "disqualify" it, to quote your own term, from being regarded as a conservatory. Some of the finest conservatories in the kingdom are not connected with dwelling house or mansion. Conservatories, as a rule, differ from greenhouses in not being occupied with formal shelves or stages for accommodating the whole of the plants which are grown in pots; in conservatories some are usually planted out, or pleasingly grouped otherwise than on stages, though these may not be entirely absent from some of the structures.

Disbudding Cyclamens (*Youngster*).—Good growers of Cyclamens never think of disbudding, as it would spoil any of the plants to do so. If you wish to grow Cyclamens well, the first thing is to procure seed from a good strain of strong and sturdy growth. Place the seeds singly an inch apart in pots of free sandy soil, to avoid crowding the seedlings. As the seeds are often long in germinating, take care that the soil does not become stale or sour. Grow the young plants without the least check in an intermediate house till June, when they should be

in 4-inch pots, then transfer to a cool frame, syringing frequently on bright days, repotting as necessary; placing them in a cool house in October for the winter, keeping the frost away, when they will begin to bloom, and should keep on till the end of March. This is Mr. Mowbray's practice in a nutshell, and if you grow the plants as well as he does you will be satisfied.

Cyclamens Failing (Silva).—You say your plants "were obtained from Mr. Cannell, and were dried after flowering last summer and put into heat this spring, yet have produced very little foliage and no blooms." If we are to understand that the corms were totally dried and remained so for three or four months we should say the life was all but dried out of them. We have seen plants after flowering with the pots plunged over their rims in cocoa-nut fibre refuse in the open at Swanley, and after taking a natural rest (not dried artificially), push clusters of robust leaves through the fibre in the course of a few weeks. If such plants have some of the loose soil removed from the roots when thus starting into growth, and fresh given, and have proper cultural attention in a cool frame till the autumn, continuing it afterwards in a heated pit or greenhouse having a temperature of 45° to 55°, they make fine flowering specimens, if the corms were not too old to begin with. Cyclamens enjoy a rather moist genial atmosphere, and neither succeed under very dry surroundings, nor in a very cold greenhouse in the winter. Possibly you may not have the most suitable structures for growing these plants, and those you have will never recover on a dry shelf in an airy conservatory. They would be much more likely to do so if planted out in free soil in a partially shaded position in the garden. They might possibly then commence growing in the summer, and if so, may be taken up and potted. We have not, however, much hope of their satisfactory recovery.

Diseased Mushrooms—Springtails (A. K.).—The "buttons" were certainly damaged by some insect which had almost, and in some cases quite, severed the connection between the clusters and the mycelium, hence they ceased swelling, and the small ones went off as fast as formed. The small insects have done the mischief, but the cause of their presence was the damp litter in which they were introduced and bred. Both the samples in the box and bottle were the same, and the insect (so-called) is one of the springtails or Thysanura, of the tribe Collembola and family Poduridae. It is named Achorutes purpurascens, Lubb., and is found "on a hothead and under branches of trees throughout the year"—(Lubbock). The insects are sometimes so common in places where fermenting materials are employed that they swarm as thick as powder, and they browse on any tender plants they can, rasping off the cuticle, so that the plants often flag and sometimes perish. While we were examining one of the creatures it sprang 2, and sometimes 3 inches high, and as it is only $\frac{1}{8}$ -inch in length, a 6-foot person with similar power would be able to leap 144 feet high. The principal food of this animal is nitrogen, which it procures as a rule from decaying vegetable matter, but it is very fond of fungi, the saprophytic, as these are highly nitrogenous. It loves moisture, hence the moist condition of the bed would favour the increase of the pests and their depredations. Lime and soot water have little or no effect on them, but they are speedily destroyed by chloride and nitric acid, which, in the form of a solution of common salt or nitrate of soda, will not injure, but if anything, benefit the Mushrooms. One-half to 1 oz. of salt in a gallon of water may be used, or one-quarter to half an ounce of nitrate of soda, the smaller dose being the safest for forced Mushrooms, but outdoor ones will usually bear the stronger. It is well to keep both from the clusters of small Mushrooms, but moistening the surface is imperative. The insects do not go deeply into the beds.

Amaryllis not Flowering Satisfactorily (The Boy).—By Amaryllis you, of course, allude to hybrid or cross-bred varieties of Hippeastrum, which in some sorts are deciduous and in others evergreen, but all require a season of rest, yet water should never be entirely withheld, especially from the varieties more or less evergreen. The growing season begins usually in February, and lasts until about September, during which they should have a minimum temperature of 60° to 65°, with 5° to 10° more by day, and 10° to 15° rise from sun heat. Young bulbs and unsatisfactory plants should be potted if they require it just when starting, shaking out some or the whole of the soil, well filling in the new amongst the roots, and making it quite firm with a hand rammer. Rather heavy or good bodied loam, with a fourth of well decayed manure, a sixth of sand, and a twelfth of charcoal, form a suitable compost, a 9-inch potful of bonemeal to a barrowload of loam being an advantage. Good drainage is very important. The plants require careful watering until they take well hold of the soil, then they should receive supplies corresponding to the growth and requirements, being duly syringed, so as to keep down red spider and other pests. The plants require abundance of light and sunshine, nurserymen doing them well, because they grow them in span-roofed houses, thus insuring the formation of a sturdy growth, thick leathery leaves, and abundant stored matter in the roots. They also secure uniform moisture and possibly some ammonia by the use of tan or cocoa-nut fibre refuse. Of course, slight shade is necessary during the flowering period to preserve the blossoms, but at all other times the plants cannot have too much light. When the plants are growing and have plenty of roots top-dressings of the advertised fertilisers occasionally or liquid manure should be given, the thing being to get sturdy, vigorous growth and support, so as to get flowering strength into the bulbs, which are what the growth is previously. Plenty of air must be administered in summer, so as to insure the thorough elaboration of the juices, not diminishing the supplies of water until the foliage gives indications of ripening, taking care to get the plants thoroughly ripened before or by

autumn, when the pots with their contents may be placed in a dry, cool house until starting time. With attention to these matters you ought to have few or no flowerless bulbs.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (J. H.).—If you read the above conditions you will find that we do not undertake to name plants which have originated from seed, as such are florists' varieties, including those you send, not distinct species. (J. H.).—1, Anchusa italica; 2, Pulmonaria officinalis; 3, Forsythia suspensa; 4, Martynia fragrans. (J. J.).—Pulmonaria officinalis. (J. C.).—The Arum Lily is frequently seen with double spathes. 1, Curculigo recurvata; 2, specimen insufficient, possibly Pulmonaria officinalis; 3, Arabis alba; 4, Asplenium flaccidum; 5, A. bulbiferum. (V. B.).—1, Coeloglyne cristata; 2, Cypripedium Elliotianum; 3, Dendrobium nobile. (Rosshire).—The Azalea is a variety of amœna, the bulbous plant Ornithogalum pyramidale.

COVENT GARDEN MARKET.—MAY 1ST.

TRADE brisker. Indoor produce in full supply. The first consignments of Tasmanian Apples arriving soft.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, per half sieve ..	1	6	to	4	6	Cobs, per 100 lbs. ..	18	0	to	0	0
„ Nova Scotia, per barrel ..	10	0		21	0	Grapes, per lb. ..	1	6		5	0
„ Tasmanian, per cask ..	8	0		13	6	Lemons, case ..	10	0		15	0
						St. Michael Pines, each ..	2	0		6	0
						Strawberries, per lb. ..	1	0		5	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Beans, Kidney, per lb. ..	1	0	to	1	3	Mustard and Oress, punnet	0	2	to 0 0
Beet, Red, dozen	1	0		0	0	Onions, bushel	3	6	4 0
Carrots, bunch	0	3		0	4	Parsley, dozen bunches ..	2	0	3 0
Cauliflowers, dozen	3	0		6	0	Parsnips, dozen	1	0	0 6
Celery, bundle	1	0		1	3	Potatoes, per cwt.	2	0	4 0
Coleworts, dozen bunches	2	0		4	0	Salsafy, bundle	1	0	1 5
Cucumbers, dozen	1	6		3	6	Seakale, per basket	0	6	1 0
Endive, dozen	1	3		1	6	Scorzoneria, bundle	1	6	0 0
Herbs, bunch	0	3		0	0	Shallots, per lb.	0	3	0 0
Leeks, bunch	0	2		0	0	Spinach, bushel	0	0	0 0
Lettuce, dozen	0	9		1	6	Tomatoes, per lb.	0	6	1 0
Mushrooms, punnet	0	9		1	0	Turnips, bunch	0	3	0 4

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	3	0	to	4	0	Roses (indoor), dozen ..	0	6	to	1	0
Azalea, dozen sprays ..	0	6		1	0	" Tea, white, dozen ..	1	6		2	6
Asparagus Fern, per bunch	2	0		3	0	" Yellow, dozen	2	0		3	0
Bouvardias, bunch	0	6		1	0	" Safrano (English),					
Carnations, 12 blooms ..	2	0		3	0	dozen..	2	0		3	0
Daffodils, (dbl.), doz. bchs.	2	6		3	0	" (French), yellow, doz.					
" (single), doz. bchs.	3	0		4	0	blooms	1	6		2	0
Eucharis, dozen	4	0		6	0	" (French), Red, dozen					
Gardenias, dozen	3	0		4	0	blooms	2	0		2	6
Geranium, scarlet, doz.						Smilax, per bunch	4	0		6	0
bunches	6	0		9	0	Tuberose, 12 blooms.. ..	0	4		0	6
Lilac (French) per bunch	5	0		6	0	Violets (English), dozen					
Lilium longiflorum, dozen	4	0		6	0	bunches	1	6		2	6
Marguerites, 12 bunches ..	1	6		3	0	Violets (French), Parme,					
Maidenhair Fern, dozen						per bunch	2	6		3	6
bunches	6	0		8	0	Violets (French), Ozar, per					
Orchids, dozen blooms ..	1	6		12	0	bunch	2	0		4	0
Pelargoniums, 12 bunches	6	0		9	0	Violets (French), Victoria,					
Primula (double), dozen						dozen bunches..	2	6		4	0
sprays	0	6		1	0						

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Ferns (small) per hundred	4	0	to 6	0	
Aspidistra, dozen	18	0		36	0	Ficus elastica, each	1	0		7	0
Aspidistra, specimen plant	5	0		10	6	Foliage plants, var., each	2	0		10	0
Azaleas, each	3	6		4	0	Genistas, per dozen	8	0		10	0
Cinerarias, per doz.	8	0		10	0	Hyacinths, dozen	9	0		12	0
Cyclamen, dozen	9	0		12	0	Lycopodiums, dozen	3	0		4	0
Dracæna, various, dozen ..	12	0		30	0	Marguerite Daisy, dozen ..	8	0		10	0
Dracæna viridis, dozen ..	9	0		18	0	Myrtles, dozen	6	0		9	0
Erica, various, dozen	9	0		18	0	Palms, in var., each	1	0		15	0
Euonymus, var., dozen	6	0		18	0	„ (specimens)	21	0		63	0
Evergreens, in var., dozen	6	0		24	0	Primulas, dozen	4	0		6	0
Ferns in variety, dozen ..	4	0		18	0						



PASTURE CULTIVATION.

CAREFUL revision, the addition of an index, and notes on worthless grasses and poisonous plants found in pastures, are the special features of the fifth edition of Mr. Martin J. Sutton's book on "Permanent and Temporary Pastures," a copy of which has been sent to us by the publishers. We

have held this book in reserve for some weeks till we had sufficient leisure to give it the attention it deserves—something very much more than a mere passing notice. It is now lying open before us in the very heart and centre of the best grazing district of High Leicestershire—a district where it is still possible for makers of Stilton cheese to obtain from the factors a shilling a pound for cheese of the highest quality, and yet where abundance of cheese is to be had at the local cheese fairs for half that price and less. It is these facts, and an intimate knowledge of the heedless mismanagement and neglect of pastures which prevails so generally, with few exceptions, that induces us to call special attention to Mr. Sutton's book as being a safe guide in the improvement of old pasture, in the management of new, and in the laying down of land to permanent and temporary pasture.

We possess, and highly value, a copy of the edition de luxe which costs a guinea, but we prize even more highly a copy of the popular edition to be had for a shilling, which, though containing no illustrations, has the whole of the chapters, and which therefore brings this invaluable guide to pasture cultivation within the means of everyone. This is desirable for many reasons, one of the most important being given in the first chapter on the extension of pastures, wherein it is shown that there was in England alone an increase of permanent grass between 1871 and 1894 inclusive of 4,392,213 acres, and that there are now 13,127,788 acres in permanent grass, and only 11,752,329 acres under arable culture.

Advisedly do we ask, Are we to regard this vast area of upwards of thirteen million acres of permanent pasture as being land "out of cultivation?" That is the term applied to all land laid down to grass in the great corn-growing district of East Anglia, and judging from the lamentable condition of very much of the pasture in the grass country in which we are now writing, it is applicable to pasture very generally. Certainly, Mr. Sutton's book may be taken as an emphatic protest against the term and against such malpractice, both in its description of the forage plants suitable for pastures, and in the cultural chapters which include, with that already mentioned, the drainage of grass land, cultural preparations for laying land down, the selection of grasses and Clovers, spring and autumn sowing, the immediate after management of new pasture, Kidmore experiments with manures on grass land, the management and improvement of old grass land, hints on haymaking, hints on grazing, grass ensilage, and temporary pastures of from one to eight years. Thoroughly practical from beginning to end, revised and brought well up to date, the book is admirably calculated to assist in the evolution of profitable farming under an agricultural depression which has rendered farming upon old lines an impossibility.

Especially do we commend this book to the attention of landowners, as calculated to show them something of what land is still capable of, and as an indication of a standard of excellence in pasture management. So far as is possible we have always given tenants a free hand in the management of their holdings, but we have so much difficulty in getting tenants to adopt anything like the systematic cultivation of the pasture for which they pay a rent which, in comparison with that of arable land, is certainly high, that we would in their agreements certainly have a covenant binding them to a systematic use of manure. In other words we would insist upon sustained fertility of soil, and so render the seasonable growth of pasture herbage a certainty—an early growth in the spring, a full and early crop of hay, an abundant aftermath, and pastures green as an emerald all the winter. Under such a regimen the brown, bare, poverty stricken aspect of permanent pasture during the winter, now so common, would become a thing of the past, both hay crop and grazing

herbage would be more abundant, live stock would be better nourished, farmers more prosperous, rent day well met, the landlord more satisfied, and the whole matter placed entirely upon a better footing. If with such desirable, because profitable, pasture cultivation we could have equal attention to the selection and breeding of live stock, we should have real progress, improvement both thorough and lasting, and a return of really profitable farming once more.

WORK ON THE HOME FARM.

The change to warmer weather and April showers sufficiently abundant to induce quick seed germination and brisk plant growth has told upon all crops. Pasture is growing freely, but the herbage of poor upland pasture is still very backward. It was time that we had such a change, the tardy spring having kept growth so backward that even now some pasture will hardly be ready for the stock on May Day. Well is it when there has been no turning out from dire necessity. We know of more than one instance where through the ten long weeks of bitter late wintry weather the whole of the store cattle were kept going well with silage; dairy cows, too, had a fair quantity of it in their mixed dietary without harm to the milk, but positive good, both colour and flavour of butter being decidedly improved.

This is a word to the wise for the coming hay time. By all means make hay with abundance of bright sunshine, but if when the grass is ready for mowing the weather is seriously unsettled then turn to ensilage for part of the grass. The point is to have the grass ready for mowing early, and to get the hay or silage early, so as to have a sufficiency after grazing for the cows and cattle.

The rain has not been so heavy as to seriously interfere with work on the land; horse hoes and cultivators are going briskly. This has been of especial importance to us on some foul land which has fallen in hand in the usual bad condition, rendering the cost of clearing it a very heavy matter indeed under any condition. With favourable weather now and steady persistent effort the greater part of the twitch is got out and burnt. It is perhaps under such pressure that the value of chemical manure becomes most apparent, because it is so portable as to be easily applied, it tells so quickly, and sustains the crop so thoroughly as to afford the best possible results, and one feels that the money spent on it has proved a good investment, and the result satisfactory in every way.

OUR LETTER BOX.

Tainted Butter (N. C.).—The fact that your butter is made in strict accordance with Miss Barron's rules affords proof that the taint is owing to some outside influence, which you must set yourself to discover. Here are some hints for your guidance. If butter is kept in a room with porous woodwork, walls, ceilings, or floors, or having drains near or opening into a drain, or with the window or ventilator opening on to a yard, rubbish heap, or any other accretion of filth, it will taint quickly. Taint may also arise from food or other things being placed in the room. The butter is so well worked that we are inclined to suspect contact with some impurity—some foul odour—after it is made. Adverse influences before churning are found in the cows' food and surroundings—foul water, foul air, and dirty milkers' hands. In one case known to us the cause of taint was traced to cracks in milkpails which had become filled with filth, yet the pails to outward appearance were perfectly clean.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet

DATE.		9 A.M.				IN THE DAY.				Rain.	
1895.		Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
April.			Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	21	29.940	53.8	52.2	S.W.	49.2	61.3	50.2	98.1	43.8	
Monday ..	22	29.965	52.4	48.1	S.W.	49.1	59.1	49.1	84.8	45.9	
Tuesday ..	23	29.626	53.9	51.2	S.W.	49.6	63.6	50.7	113.6	49.8	
Wednesday ..	24	29.722	54.6	49.2	S.E.	49.4	64.6	42.7	108.2	37.8	
Thursday ..	25	29.432	50.3	50.3	N.E.	49.9	58.1	43.9	91.8	36.1	
Friday ..	26	29.438	47.8	46.2	N.W.	49.7	55.0	46.6	100.3	44.1	
Saturday ..	27	29.571	46.9	46.2	W.	49.1	54.2	45.1	88.7	44.1	
		29.671	51.4	49.1		49.4	59.4	46.9	97.9	43.1	

REMARKS.

- 21st.—Rain from 3 to 5 A.M.; alternate cloud and sunshine in day, threatening at times.
 22nd.—Generally overcast, but some sunshine in the middle of the day; rain in evening and night.
 23rd.—Overcast morning with occasional spots of rain early; bright sunshine in afternoon.
 24th.—Overcast early; fine and sunny from 10 A.M. to 2 P.M., then overcast, and spots of rain about 3 P.M.; slight showers in evening.
 25th.—Heavy rain from 8.30 to 9.30 and rain till 11 A.M.; overcast day, with occasional sunshine; showers in night.
 26th.—Generally overcast, with rain at intervals; occasional gleams of sun.
 27th.—Rain early; dull, drizzly, and showery morning; thunder at 1.30; frequently sunny in afternoon; rain again in evening and night.
 — A rainy week, with temperature slightly above the average.—G. J. SYMONS.

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CELEBRATED PEDIGREE ROSES,

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Journal of Horticulture.

THURSDAY, MAY 9, 1895.

HARDY FLOWER NOTES.

SPRING has come with reluctant feet, and many flowers seem loth to expose their loveliness to the cruel mercies of the cold, harsh air. Still Nature compels them to make an effort to fulfil their destiny, and with manifest unwillingness many unfold their charms.

The Daffodil—the universal favourite—waves to and fro in unison with the music of the winds. Snowy Arabis makes sheets of white on the rockeries and borders. Alyssums show a glimmer of yellow which quickly develops into masses of brilliant gold. The early Tulips have come into bloom, and given us a foretaste of the delights the vivid colours of the later ones will yield. The "fair and frail Anemone," as Shelley calls it, entrances us with its beauty, and Primroses and Polyanthuses seem to vie with other plants in yielding us pleasure. This running commentary, as it might well be called, could be continued long enough, but we must pass from the general to the particular, and single out some plants for more detailed notice.

Very charming are these flowers, and in their fashioning Nature has not forgotten to give us varieties which cannot be mistaken for the "snow that has stayed too long," inasmuch as they have flowers of other colours. These coloured varieties of the Wood Anemone do not bedeck themselves with the brilliant hues of some of their congeners, such as Anemone coronaria or A. pulsatilla, but they have a softness of colour which appeals to all who love chaste shades in flowers.

We have the pretty variety of Anemone nemorosa named rosea, the equally attractive bluish variety called coerulea, which is again surpassed by the fine one known as coerulescens, and I have now the good fortune to possess one named purpurea, which was, I understand, raised by Mr. James Allen, to whom I am indebted for it. I am not sure that I should call it purple, although in gardening that word has to do duty for many tints. Still, the plant is a pretty one, and will be prized by those who seek to add to their collections of plants those which are "new and rare."

Among the plants which the mention of the Wood Anemone suggests to one's thoughts is a

charming little *Potentilla* which came into flower in the beginning of April, and which some of my visitors, even those well acquainted with flowers, at first sight take for a variety of *Anemone nemorosa*. This is *Potentilla alchemilloides*, which, besides its attractions of beauty and neatness, has also the merit of continuing in flower for a very long period. This will be apparent when I mention that it was one of the last of the rock plants to go out of flower last autumn, and that in such a late spring as this it came into flower with the opening of April. It does not seem to be generally known, nor to be in the hands of many of the nurserymen. The flowers are pure white, and are very freely produced.

The plant is aptly named *alchemilloides* from the resemblance of the leaves to those of the Alpine Lady's Mantle, and the habit is exceedingly good. On a somewhat dry rockery this little *Potentilla* only grows to about 4 inches in height. It may be increased by division, and as it has survived last winter without protection it may be considered quite hardy in dryish soils.

No one can write on hardy flowers at this season without thinking of the Daffodils, among the most graceful and beautiful of our garden flowers. While the fine forms and colours of the yellow and bicolor trumpet varieties are ever welcome, we cannot feel our garden complete without some of the white and sulphur-coloured kinds. Some years they disappoint us, but this year they are blooming with unusual freedom, and their chastely coloured flowers are much admired. Very beautiful, indeed, are such flowers as *cernuus*, *moschatus* of Haworth, if in truth it is Haworth's plant; *albicans*, *tortuosus*, Colleen Bawn, and others. *Pallidus præcox*, too, always a good bloomer in my garden, has flowered even more freely than usual, and I feel inclined to add to my stock of this early and pretty Trumpet Daffodil. It flourishes better on the rockery than on level ground, and in a position where it has a good deal of sun.

A day or two spent in other gardens than my own has made me resolve to make a fresh attempt to succeed with the *Puschkinias*, which have hitherto baffled me to establish. In the course of some three days I saw them growing well in as many gardens and under different conditions of soil and situation, so that I am hopeful that in some part of my garden I may be able to establish this pretty bulbous plant, which is also known as *Adamsia*. There seems to be some confusion regarding the specific name or names of the plant or plants to be found in gardens. I have been turning up some of my works of reference to endeavour to reconcile the various statements I had previously heard and read, and find that it seems to be now accepted that *P. scilloides*, *P. libanotica*, and *P. sicula* are the same, and that *P. s. compacta* has more numerous flowers than the type, and has also a more compact habit.

I had for some years been under the impression that *P. scilloides* and *P. libanotica* were not the same, and that the former had narrower and fainter coloured blue lines down the centre of its white flowers than *P. libanotica*. One must, however, bow to superior authority, but it will be noticed that the difference which was supposed to mark two species will be found to exist in the plants grown in gardens under either name. One can only suppose that in a wild state the *Puschkinia* will show considerable variation. *P. scilloides* is a native of Asia Minor and the Mediterranean regions, and grows from 4 to 8 inches high. The flowers, which are produced in racemes on a leafless stalk, are white with a pale blue stripe down the centre and on both sides of the perianth segments. The leaves are narrow, rather lance-shaped, and grow to 7 or 8 inches in length.

It is named in honour of M. Pouschkin, a Russian botanist. Sandy loam and leaf mould is said to be the most suitable soil, but it has not succeeded with me in this medium, while I have seen it doing well in a good loamy soil, and also in that of a stiff, clayey nature. Bulbs should be procured and planted in the autumn.

For some time the various hardy *Primulas* have received an increased share of attention from hardy flower growers. This they well deserve from the beauty of many of the species and their

hybrids, and from the fact that there is hardly any limit to the possibilities in store for these plants, when the skill of the hybridiser is devoted to their improvement. We can all admire the beauty of the *Auricula*, whether seen in the hardier alpiners or in the more refined stage varieties, and what has been done with these may be done to some extent with many species not yet taken in hand.

Not that they have been entirely neglected, for many of the fine *Primulas* generally supposed to be species, are either natural or artificial hybrids. For some time I have been gradually forming a small collection of the hardier sorts, and among these few have this spring given greater pleasure than *P. Steini*. This is said to be a hybrid, and according to Mr. D. Dewar's "Synonymic List of the Species and Forms of the Genus *Primula*," drawn up for the *Primula Conference* at South Kensington in April, 1886, its parents are *P. minima* and *P. hirsuta*. It is an exceedingly beautiful little *Primula*, with small toothed spathulate obovate leaves, and very bright purple flowers produced on short stalks, which in my garden are not more than 2 inches high.

It is grown on the east side of a terraced rockery in a "pocket" filled with sandy peat, and planted between two stones, so that its roots come in contact with them. It has stood the last two winters without covering or protection of any kind, so that its hardiness seems to be quite beyond doubt. It is to be hoped that the *Primula Conference* this year may cause still more interest to be taken in this beautiful class of plants.

Among my acquisitions in the way of bulbs last autumn was *Tulipa Kaufmanniana*, of which I had heard a great deal. My solitary bulb flowered early in April, and proves to be the variety known as *T. K. albo-variegata*, which has the inside of the perianth white, becoming yellow towards the base, the outside being also white but tinged with grey and rose. It grew about 9 inches high, and although a pretty Tulip is rather lacking in the brilliancy we look for in nearly all the plants of this ornamental genus.

It is, however, one of the flowers which improve on examination, and recalls such flowers as some of the Water Lilies, although this is only from the colouration. As may be gathered from the specific name, which indicates the advance of the Russians in Central Asia, it is a native of that region where the name of Kaufmann has become so well known. Although introduced in 1877 it is not as yet widely known in gardens. From the description of the type it should be more brilliant than the one under notice, as it has a bright yellow perianth.

Even as one writes growth is rapidly advancing, and before this appears the rockeries and borders will be bright with flowers of many hues, and so attractive that it will be only with difficulty that we are able to leave them even for the congenial task of telling their charms through the unsatisfactory medium of pen and ink.—S. ARNOTT, *Dumfries*.

WALLFLOWERS.

ONE glance at the above familiar name is this year quite enough to bring to the minds of many of us thoughts of dismal failure. Spring time has, however, again arrived, and it would be unwise to allow one failure to deter us from making adequate provision for another season, when the chances are all in favour of a successful termination of our labours.

Independent of these considerations it seems to me that Wallflowers are quite indispensable spring-flowering plants, because they supply flowers with a rich perfume which at the same time can vie in brilliancy of colours with anything to be found in the open air during the early spring months. All varieties of Wallflowers are suitable for planting in large beds and borders. Hitherto the great difficulty has been to secure a variety sufficiently dwarf and compact in growth to admit of its being planted in groups of formal beds without destroying the balance of growth so necessary in such instances to secure a good effect. Fortunately, however, the right thing has come at last in the form of Sutton's dwarf bedding varieties. The intrinsic merits of these cannot be too widely known, for they are simply perfect.

In a short note published in this Journal recently I referred to

these as being the only varieties which had come through the late severe winter without injury; but I refrained from saying much about their very dwarf habit then, as I intended to wait till they were in flower, so that I might write from experience only. They are now (April 27th) unfolding their flowers rapidly, and I must say they have fully realised the high opinion I had formed of them. The height of the plants when in full flower varies from 5 to 7 inches, and the habit is thoroughly sturdy and compact.

These bedding varieties may be obtained in two distinct colours, yellow and rich brown. The first named is particularly valuable on account of the flowers being of a beautiful bright orange yellow, a shade of colour always in demand among spring flowering plants, on account of the many blue and purple shades to be found in other plants in flower at the same time. Golden Tom Thumb is another excellent dwarf Wallflower, being particularly rich in colour, and growing only slightly taller than the varieties previously mentioned. As far as my experience goes these are the three best dwarf Wallflowers in cultivation. Turning to other varieties which grow rather taller, and are suitable for large beds and borders, we have plenty of fine varieties to select from.

Primrose Dame and Fairie Queen supply quite new shades of colour, being sulphur and delicate lemon respectively; each is good in its way, and well adapted for using as "dot" plants, with a groundwork of *Myosotis dissitiflora*. Veitch's Selected Yellow is also a grand variety for that purpose, the flowers being large and wonderfully bright in colour. We have now so many shades of yellow in these charming flowers that I think a wondrously beautiful effect might be produced by planting a large bed with all the yellow varieties obtainable.

Arranging the darkest shades in the centre, and so graduating them as to have the pale lemon colours as near to the outer edge as their height will allow, finishing off with a band of dwarf bedders, or this variety might be planted as a groundwork with clumps of taller kinds arranged here and there. Eastern Queen is a most peculiar and attractive form. The marble-like intermingling of apricot with creamy white reminds one of the quaint markings of German Irises.

Harbinger and Parisian Early are each well-known early kinds, which for that reason are well worthy of being grown in pots; indeed, there are few more showy pot plants in early spring than well-grown Wallflowers of the best types. If these are brought into flower before those in the open air begin to unfold their beauty few would object to them on the score of being common. Double German varieties are not so extensively grown as the single types, and I think will never be so popular for bedding purposes. They are, however, extremely showy, and no garden should be without them. A spike from a well-grown plant is so massive as to be quite a show in itself.

I find that May is quite early enough to sow all the varieties, and I prefer sowing thinly in the open air, the seedlings then come sturdy from the start, and throw out their side shoots close to the ground. When sown in boxes the young plants often become drawn before being transplanted. Then, no matter how good the strain may be, the dwarf habit so desirable is not easily attained. When the seedlings are 2 inches in height I transplant in rows 9 inches apart, and allow 3 inches between the plants in the rows. Later on every other plant is lifted and planted 9 inches asunder.

By thus allowing abundance of room very sturdy plants are obtained by the autumn months. Those intended for flowering in beds should if possible be planted in October, so that they may become established before severe weather sets in, the risk of being killed by frost is then reduced to minimum.—H. D.



CATTLEYA CITRINA.

At the last meeting of the Royal Horticultural Society, held at the Drill Hall, on the 23rd ult., Mr. W. Rapley, gardener to H. Grinling, Esq., Harrow Weald House, Middlesex, exhibited a plant in flower of this grand old Orchid. The blooms were so fine, as well in substance and colour as in form, that the Committee accorded to it a first-class certificate. This *Cattleya* is so well known as to need no special description, but attention may be called to the lip (see illustration, fig. 67), which is a superb feature. Had this not passed the Committee we might recommend it should be named *C. citrina*, Grinling's variety, as it is well worthy of some distinctive appellation.

EPIDENDRUM STAMFORDIANUM.

It may interest readers of the Journal to know that we have an *Epidendrum Stamfordianum* which has produced thirteen beautiful spikes of bloom from five growths which it made last year. There are nine spikes from three growths, and four from the other two, giving a total of 617 single flowers. On Easter Sunday we had a *Dendrobium fimbriatum oculatum*, with twenty-four spikes fully open, and others showing colour. This plant produced thirty-three spikes, two or three spikes on a growth, averaging eleven flowers to a spike.—C. PAYNE, *Teashurst, Dorking*.

THE SELWOOD COLLECTION OF ORCHIDS.

The sale of this collection of Orchids, conducted by Messrs. Protheroe & Morris, secured some high prices, the best of which was 140 guineas given for twenty-four bulbs, four leads, of the



FIG. 67.—CATTLEYA CITRINA.

Cattleya Hardyana (Selwood variety). This specimen, which secured an award of merit last year, was described as "a grand plant, sepals and petals rosy mauve, veined white, lip rich maroon, with yellow blotch on each side of the throat." Seventy guineas each was the sum paid for several other varieties, and the whole collection fetched £3804.

CATTLEYA TRIANÆ PRINCESS BEATRICE.

Mr. W. Drover, F.R.H.S., of the firm of W. & G. Drover, had the honour of making the bouquet which was presented to Princess Beatrice on the opening of the fancy fair at the Town Hall, Portsmouth. Blooms of *Cattleya Trianæ* were much admired by the Princess. The colour was of soft rich mauve, with delicately fringed edge; the lip very large, rich purple. Through the permission of Prince Henry of Battenberg the firm is allowed to name it Princess Beatrice.

CATTLEYA MENDEL.

Although there has not been so many varieties of this *Cattleya* described as of *C. Trianæ* or *C. Mossiæ* there is nevertheless considerable variation in the size and colour of the flowers. Some of the best types are fit to rank with the finest of the genus, and there is not a variety that is not well worth growing. The flowering season is usually April or May, though a few of the later varieties are sometimes in flower as late as midsummer. A good typical flower would be from 6 to 7 inches across, and the sepals and petals are light rose, the lip broad, spreading in front, wavy and prettily crisped. This latter is often deeper in colour than the sepals and petals, with a deep yellow blotch in the throat, the side lobes

frequently white. The pseudo-bulbs are shorter than those of *C. Trianae*, furrowed, and each bears a single leathery leaf. The cultivation of this species presents no special difficulty, but it is not quite so free flowering as *C. Mossiae* or *C. Trianae*.

The proper season for repotting is immediately the flowers are over, and a rough open compost over good drainage is essential. *C. Mendeli* is a native of New Grenada, originally introduced in 1870. Some of the best known varieties are *C. M. bella*, a nice form with pale lilac sepals and petals, the lip having a good deal of yellow veined with lilac and white. *C. M. Blunti* is a smaller albino form, the only colour being a yellow blotch on the lip. *C. M. grandiflora* is a handsome form nearly 8 inches across, the sepals and petals broader than the type, the lip very broad, and altogether a magnificent flower. *C. M. Rothschildianum* is a deeper coloured variety than the type, the sepals, petals, and lip being bright amethyst purple. *C. M. Victoriae* is a pure white form of the type, excepting the markings on the lip. This was, I believe, introduced by Mr. W. Bull, who has a good stock of it. *C. M. superbissima* is somewhat similar to *Rothschildianum*, but rather larger. This does not by any means exhaust the list of varieties, but those named are probably the most distinct.—H. R. R.

BOTHIANA.

(Continued from page 377.)

DRAWING.

"The pencil oft avails—words failing to express—
To clothe the crude idea in rational dress."

IN the order of sequence pertaining to the three R.'s, arithmetic here has its place. The art of figures is not to be contemned, and must of necessity be a part and parcel of future requirements. The slate and pencil may not unworthily be included in your educational stock in trade, and may serve as a refresher on occasion. I have found it do so on a winter's night when firing duties kept one up to the "wee sma' hours," and the eyes which dare not close found relief by it from reading and writing. This digression appears necessary to prevent exclusion of a subject which need not longer detain.

I pass on to what can hardly fail to prove to you—as it did to me—the most fascinating of studies in the bothy. On the importance of a knowledge of drawing in our profession there cannot be two opinions. The value of the art is admitted. As the shuttle of thought plys in the loom of memory, I cannot recall any pleasanter hours than those spent over the drawing board—a pleasure emphasised by the profitable investment this proved to be when bothy days were gone for ever. As an educational agent in training the hand and eye drawing is unrivalled, and considering how much its correlative objects are present in our duties it would not be easy to over-estimate the benefits a knowledge of it confers. By its means difficulties apparently insuperable vanish. Excellence takes the place of mediocrity at one-half the expense of force. Its importance is now generally admitted by members of the craft, whereas in the youth of a bygone generation such aspirations were too often crushed by some of the old school, who would rather by force of windy argument show how they had contrived to live and thrive in ignorance rather than admit its value. True, it may be granted that they could form no proper estimate of a thesis they did not possess.

Those were the days when to write a fair hand placed the performer far up in the orchestra of life's concert. Not so now. This is evident to you, and I venture to predict that in the near future employers will expect their gardener—if he is of any status, and this you aspire to—to produce a neat and correctly drawn plan to a scale where contemplated alterations of any magnitude are in view. Gardeners like to have their own way, and they should get it, if it is the best way, which it generally is. This is my experience. I want my own way to build, to alter, pull down, put up from a gardener's point of view; but the subject is well thought out before applying to the powers that be, and the thoughts of the new pit, house, walk, or what not, are interpreted on paper to be produced when the question is raised. This is more convincing than a babel of technical talk, which often ends in postponement for ever, and this simply for the want of a medium of lucid expression. Here is the medium: a ground plan, section, elevation of the new house, designs for new beds, or the laying out of a new garden and grounds with all accessories.

During the period of bothy existence the requisites for drawing need be but of the simplest description, such as will readily fit in your trunk and make but a slender demand on the pocket. The articles required are a drawing board, T-square, two set squares, set of mathematical instruments, pencil, camel's-hair pencil, stick

of Indian ink, some sheets of cartridge paper, with a few drawing pins for holding the paper on the board. The drawing board I would advise to be of such dimensions as will fit in the bottom of your trunk, about 18 inches by 24 inches. This and the T-square may be home-made; but it is essential that they should be well made and true, hence I would give the preference to bought ones. Instruments commonly known as drawing tools may be purchased from 1s. upwards. The whole outfit, including all mentioned, may be purchased for about 5s.; but as this is of the cheapest and simplest kind it may not commend itself to students of more ambitious tastes. My reason for bringing this, and all outlay pertaining to the bothy lessons, to the lowest point consistent with utility is, that not any excuse on the score of expense shall be available to the young beginner.

The outfit, as above, is amply sufficient if the patience and perseverance are forthcoming. Should these virtues be wanting the costliest tools will not avail, and better by far that I should incur some dissentient criticism from practised hands than one youth should be deterred from starting. When leaving the bothy for good and all, and a more pretentious outfit appears desirable, hand them over to some young brother of the craft with a little sympathetic counsel. In drawing do all in pencil first, acquire the habit of keeping your paper clean, ink over the pencil lines when satisfied that any errors have been corrected, clean over the whole with a piece of stale bread. Be not discouraged by the crude appearance of early attempts. The stiffness of the hand will soon give way to a free-and-easy manner. Number consecutively and date each sheet, thus marking progress, as advised in the writing lessons. A very little practice will afford the opportunity of making plans of such things as are at present around you, to be utilised in the years to come.

As a gardener's chief requirements are practically confined to the geometrical section of drawing, it is absolutely necessary to acquire the elementary principles of it. In the series of drawing books published by Vere Foster or Cassell & Co., the numbers specially treating on this subject will sufficiently introduce it to you, and lay the solid foundation for subsequent work. Devote some time to this elementary training prior to commencing more ambitious designs. Hasten slowly is an ethic of self-tuition not to be trifled with.

In the "Gardeners' Assistant" you will find plates illustrating horticultural buildings, and when commencing similar work these will furnish ideas to work on, and an idea of the results you should and can attain to by practice in this department of plan drawing. Faint washes of Indian ink will give the touch of a master hand in depicting the lights and shadows falling on the glass. Note also the scale to be found accompanying a plan you wish to model your work on. A little practice, with some thoughtful attention, will clear away those little difficulties at first experienced with it. Later on a box of water colours may be added for tinting flower garden designs. The drawing books mentioned above may be had for 1d. or 2d. each. It is quite possible some friendly hand may guide you on little points which I am precluded from doing; but failing this, it is quite possible for you to succeed if you intend to do so. Do so, and you will not regret it.

BOTANY.

"To him who in the love of Nature holds communion with her visible forms,
She speaks a various language."

In the pursuit of knowledge, and taking it for granted that a foretaste of those pure pleasures derived from it have been already experienced, the feeling will arise to economise the spare time of summer days, as well as winter nights. The subjects previously brought under notice are, it is obvious, pre-eminently adapted to the latter. With the lengthening days of summer the pen, the pencil, or the book are apt to lose some of that magic influence they have, I trust, woven around you. Counter attractions now present themselves, and the desire prevails to go forth into the fields, the woods, breathing the deep beauty of Nature. It could not be otherwise, nor should it be otherwise. The silent teacher has glorious lessons for her pupils. Be one of them. Read the pages of her immortal books, science holds the key, and that key is botany. You may doubtless enjoy all that young life can enjoy in admiring fresh scenes, but it is the turning over the pages for the pictures and ignoring the teaching.

The affinity of botany to gardening is evident, and the importance of a knowledge of it is illustrated by the prominence it holds in the curriculum of other professions. That a man may be an excellent gardener and not a botanist, or *vice versa*, goes without saying. One may even go farther and note some instances in which the study of this science has developed into an all-absorbent passion where the chief ends and aims of gardening find no place. With

us there is not any danger of this occurring. We may at least acquire an elementary training, and derive much benefit from it. By its means new fields of thought are opened up, additional interest given to those objects of our direct care, and the beauty of our native flora revealed. A concise analysis of the organs of plants is given in the "Gardeners' Assistant"—this, with the practical lessons on chemistry following it, cannot well be overlooked by you; add to this a manual on elementary botany as a pocket companion, your rambles will then be neither aimless nor fruitless. Opportunities will be afforded for making acquaintance with new bits of the old country, and Shanks' mare—an unrivalled means of locomotion within a radius of twenty miles—will give facilities for observation, storing up many a pleasant picture for the future when recalling memories of the past.—AN OLD BOY.

(To be continued.)

PACKING AUSTRALIAN FRUIT.

THAT large numbers of sound antipodean Apples arrive in London at this season of the year is beyond question; but how many fail on the way we have no means of knowing. In a recent experimental consignment of fruit the failure was, in the case of Grapes, Plums, and Pears, complete (except in the case of a hard stewing Pear), while the special means taken to preserve the Apples did not in any sense answer the purpose intended. We have been requested by Mr. L. M. Hutchinson to examine samples of fruit sent by Mr. George Neilson, Curator Royal Horticultural Society's Gardens, Melbourne, Victoria, and mention the results. As we have said, the Grapes and Plums were all spoiled, also, with one exception, the Pears; we have only to refer to the Apples.

Some of these, also the other fruits, had been dipped in a preservative solution, and appeared as if varnished; while others were wrapped in soft white paper and embedded in Melaleuca or Titree bark, a colonial product.

The preservative solution, from which so much appears to have been expected, proved either useless or worse. The Apples were gathered and dipped on March 1st, shipped the next day, and examined in Fleet Street on April 26th.

Three out of four of the dipped Cox's Orange Pippins were quite spoiled, the prevention of evaporation appearing to have incited internal fermentation, blackening the fruits throughout. Those not varnished were not all decayed, but the best of them were devoid of the characteristic flavour. The fruits were excellent samples when gathered.

Fruits of *Æsopus Spitzenberg* Apple were not decayed, yet were of practically no value, being musty, sweet, and soft.

Samples of the variety named Perfection were very attractive, but too far gone and quite mealy.

All the specimens of London Pippin were sound, varnished and unvarnished, but were either devoid of flavour or unpleasant to the palate. This proved the best traveller; but not many persons would twice buy Apples so defective in quality.

Adams' Pearmain fruits were of the first size, but two out of three that had been dipped were blackened and spoiled; sound fruits, sweet, but very dry, and of practically no value.

The Melaleuca bark has proved the reverse of advantageous as packing material. As a matter of fact it was more decidedly Apple flavoured than were the fruits themselves, from which it had absorbed the virtues.

We received in May, 1883, a small consignment of Australian Apples, packed by Mr. Neilson and brought over by Mr. Hutchinson. These were exhibited at an evening meeting of the Royal Horticultural Society at Burlington House, and evoked expressions of surprise and admiration. Each fruit had been simply wrapped in white paper and closely packed. Only a few were shrivelled, most arriving in splendid condition. It is possible that if the few that were shrivelled had been wrapped in less porous paper (such as "butter paper," in which "W. R. Raillem's" Roses (page 407) came so fresh last week) that they might have been fresh too. A sample of the paper has been taken by Mr. Hutchinson, and will probably be tried in Australia.

We are inclined to think, however, that if sound fruits, gathered at the right time, and firmly packed so as to be quite immovable, without paper or anything else, except, perhaps, a surrounding lining of non-conducting material, such as hair felt, attached inside the cases, would be as likely to arrive in a sound state and of good quality, as they would under more elaborate methods; and certainly both the "preservative dipping" and Melaleuca bark led to the decay of most of the fruits and loss of flavour of others in the consignment in question. Obviously Australian Apples arriving in this country in May and June do not prejudice the sales of home-grown fruit.

MY FIRST FLOWER SHOW.

No matter where, no matter when, sufficient to say that the importance I felt from the time it was decided who was to go, who stay at home, was out of all proportion to the subordinate position I then held as a junior in the bothy. Days, nay weeks, previous had the coming event cast its shadow before, and as the crisis approached something akin to disorder was visible in the most orderly of well kept gardens. Grave, sober-minded old labourers took surreptitious peeps at us through door or sash, and prophesied according to their views of life in general, and of flower shows in particular. Even "the Missus," whose motherly supervision made our neat little bothy homelike, at last forsook the care of our beds and board, and was engaged, spectacles on nose, peering into specimen plants for stray bugs which might mean disgrace, or sponging the foliage, so that no leaf was left unturned, whereby our efforts might be crowned with success. For were we not competing for the group—the blue riband of the Royal Stone-wallshire Horticultural Society?

It was to be a hard fight. So said those who knew, and from what I could glean, victory or defeat hung in the balance over a fine specimen *Allamanda*, which—that it might be in the prime of prime conditions at the appointed time—had made journeyings oft from a hot house to a cool one, and back again according as blooms developed or hopes rose and fell. Our most formidable opponent possessed as good a specimen, but now, on the eve of the contest, our plant being engineered to perfection, it was a foregone conclusion that the enemy's plant would be either a little early or a little late, and who could match the matchless?

So far so good; with a sense of relief we took a last look at the beauties packed in the van; fastened the tail sheets and saw the plants curtained in comfort for the night, with our hamper of necessities, comprising blocks, matting, moss, and sundries swung hammock fashion from the axles. So far as weather was concerned, and needless to say it did concern, a falling glass did not provide the brightest of prospects, yet even that was (prematurely) settled to our satisfaction. Older heads shook out statistics showing how at such a show it was fine, and such a one wet, so that the balance of opinion went as we wished (beforehand).

Now, as some twelve miles intervened between the sphere of our hopes and the arena of realisation, an early start to cover the distance at a walking pace was imperative. Well grown, well bloomed plants, however well packed, must not be needlessly shaken, nor whip nor spur urge our steady old horses to "rattle their bones over the stones." Having by such incontrovertible logic—as detailed—pre-arranged the weather, prejudged our plants so satisfactorily, a busy day with a prospective busier one to-morrow gave urgent reasons for rest, and the wisdom of it without further debate was impressed by the teeth of that old saw, "early to bed, early to rise." Our carter, who lived outside the garden walls, had promised to call us at half-past two—should he wake! We had promised to call him at half-past two, should we wake, hence from mutual dependence arose mutual distrust. My watch—a family heirloom of the turnip type—was not infallible, having a habit of marking time indifferently by stopping and going on again spontaneously, whilst the remaining watch in the bothy would not go at all.

Fully impressed with my responsibility I fell asleep, matches by my side and the good old timepiece under my pillow, to be awakened by one of my comrades stentoriously exclaiming he knew it was time to get up. Assuming his knowledge to be reliable, one leap brought me to the floor with the prompt attempt to misfit on my garments, when came the pertinent question, "What's o'clock by your watch?" It told me—and was endorsed by my own feelings—that we had been in bed just half an hour and five minutes. So again silence reigned, interrupted only by the striking of matches through the night. Finally some troubled dream connected with plants accompanied by a sort of spirit rapping-tapping at the window pane resolved itself into a tangible rattling, with the voice of our carter saying, "It's half-past two and pouring o' rain, be you chaps gwine to lay abed all day?" Instant activity dispelled such an impertinent insinuation, and we were soon prospecting our breakfast and the weather. A wet morning, however unpleasant, meant, of course, a fine day—it would clear, which it eventually did on the morrow.

On with top coats, off in good time in spirits the downpour could not quench, probably sustained by some cigars of the Chou d'Anglais type bought at the village shop specially by myself as an offering meet for the occasion. So on, the three of us, riding by turns, through the grey gloom and the unceasing splish splash of the rain. What matter, the plants were safe and we were sound—neither pepper nor salt.

Some anxiety was manifested by my comrades on approaching the turnpike, and the question was raised, "Will old Pikey be up?"

but "old Pikey" slept the sleep of the just and delayed us unjustifiably, considerably ruffling our tempers ere the fee was paid and the passport made out freeing us from further impositions of that kind. Nearing the place of rendezvous, tempers were again tried by observing the opposition load of plants converging towards us from a road at right angles. Our phlegmatic driver was now thoroughly aroused, and such compliments as "Yah! poonch thy yeard" were freely exchanged with the rival Jehu, accompanied by an apparent desire of the twain to race as well as fight. Valour, however gave way to discretion, in fact later on in the day to brotherly love, for the same two drivers were to be seen convivially toasting those healths which but a few short hours previously they had ardently desired to injure.

Of the events of that eventful day but one or two need be recorded here. The band of the Coldstreams (appropriate for a wet day) discoursed sweet music under the muffling canopy of a tent. One grateful recollection yet stands out clear and distinct amidst the troubles of staging, the anxiety of results, the music and the mud, that was a substantial free breakfast to which we juniors were admitted after our betters—the judges and the heads—had done justice to it. As for the blue riband, first prize for the plants which we had awarded to ourselves the day previous, the judges confirmed that decision. "Old Pikey" gave us no trouble on our return. Our "gaffer," whose confidence in us had not been misplaced by his staying at home, met the wanderers with a lantern. Drenched, tired, and satisfied, our adventures ended in a peaceful night's rest to all, especially—THE JUNIOR.



EVENTS OF THE WEEK.—After a lapse of three weeks the Committees of the Royal Horticultural Society meet again at the Drill Hall, Westminster, on Tuesday next, while on Wednesday the Royal Botanic Society will hold its summer exhibition in Regent's Park. These appear to be the only events of particular horticultural interest during the forthcoming week.

THE WEATHER IN LONDON.—During the past week we have experienced glorious weather. The sun has shone brilliantly on each day, and is rapidly gaining considerable power. The nights, however, continue cold, frost having been registered on several mornings, notably on Thursday last, when 5° were experienced in an outlying southern suburb, and the atmosphere is very dry.

WEATHER IN THE NORTH.—May opened with a drizzly morning and a cold W. wind, but the day improved towards evening. The morning of the 2nd was dull, but since then, till Tuesday, the weather has been very bright and fine, although the wind has generally been easterly, and cold evenings have occurred. Trees and hedges are rapidly advancing, and pasture is now abundant.—B. D., *S. Perthshire*.

DEATH OF MR. THOMAS HOGG.—We regret to have to announce the death of Mr. Thomas Hogg, the head of the old-established seed and nursery business of Hogg & Wood of Coldstream, N.B. Mr. Hogg had been in indifferent health for some months, and notwithstanding frequent visits to the various health resorts of the Continent, and voyages to America and the Mediterranean, his constitution was unable to resist a complication of ailments. Mr. Hogg was visiting the salt baths at Droitwich when he died on the morning of 4th inst., aged seventy-four. He was a Justice of the Peace for Berwickshire for many years.

NATIONAL AMATEUR GARDENERS' ASSOCIATION.—At a meeting of the above Society held on Tuesday evening at the Memorial Hall, Farringdon Street, E.C., with Mr. T. W. Sanders in the chair, an exhaustive and instructive paper on "Zonal Pelargoniums" was read by Mr. H. J. Jones of Lewisham. The essayist dealt lucidly with the cultivation of the above plants in all stages, and on conclusion of the paper a short but interesting discussion took place. In the exhibition room creditable displays of Zonal Pelargoniums, Azalea mollis, Violas, Fuchsias, Auriculas, Asparagus, Rhubarb, and Seakale were staged, for which points were awarded.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Society will be held in the Drill Hall, James Street, Victoria Street, Westminster, on Tuesday, May 14th, when a large show of Daffodils and other hardy flowers is anticipated. At 3 P.M. Dr. Morris of Kew will deliver a lecture on the "Plants and Gardens of the Canary Islands." The lecture will be illustrated by dissolving views from the magic lantern.

ROYAL METEOROLOGICAL SOCIETY.—At the ordinary meeting of the Society, to be held by kind permission of the Council of the Surveyors' Institution, at 12, Great George Street, Westminster, on Wednesday, the 15th instant, at 7.30 P.M., the following papers will be read:—"The November Floods of 1894 in the Thames Valley," by G. J. Symons, F.R.S., and G. Chatterton, M.A., M.Inst.C.C. "Barometrical Changes Preceding and Accompanying the Heavy Rainfall of November, 1894," by F. J. Brodie, F.R.Met.Soc.

NEW VIOLA CHARM.—Mr. William Cuthbertson sends us flowers of this variety, and writes:—"We have had all the best varieties of Violas in bloom in pots in a cool greenhouse for some time, and the above variety well merits its name. It is a most beautiful shade of lavender, like that of the old-fashioned Marriage-ties. The variety was raised by Mr. Samuel McKie of Belfast, and is being distributed this spring by Mr. William Sydenham of Tamworth. All Viola fanciers should make a note of it." [The colour of the flower is very delicate and pleasing.]

FERNS AT KEW.—The Director of the Royal Gardens, Kew, has favoured us with a copy of a hand-list of the Fern and Fern allies cultivated in those gardens, and which has just been published. Before the list of Ferns, which is alphabetical, is an admirably written preface, giving in brief the history of the collection, from which it appears that in 1846 there were 400 species of Ferns grown, while the present hand-book contains no less than 1116 species and varieties with ninety-seven Fern allies, this being exclusive of British Ferns, which number 586 varieties. The price of the publication is only 6d., and it may be had from the Gardens.

SEAWEED AS A FERTILISER.—On the sea coast this is of much importance. When wet it is two-thirds water, but when dried on the beach only about one-third its weight is water, and it is a useful absorbent in stables. The wet seaweed contains nearly 1 per cent. of nitrogen, potash 3 per cent., and phosphoric acid 1½ per cent. If the rockweed is dried until it contains only half as much water as when wet, a ton of it will have nearly twice as much of these elements. The nitrogen is lost if the seaweed is burned. Seaweed also contains considerable soda and lime, and is good for all crops if spread on the soil and lightly ploughed or harrowed in.

ROYAL BOTANIC SOCIETY.—At a meeting of this Society held recently, Mr. Granville R. Ryder in the chair, among the objects of interest exhibited were a number of growing plants of *Sansevieria cylindrica*, the Bowstring Hemp, obtained by dividing one of the stick-like leaves transversely into pieces and planting them, when young shoots appear at the base, although no sign of any node or budding point can be traced on the leaf. The plant is remarkable as producing one of the strongest of known fibres. It was remarked at the meeting that the conservatories of the Society were now at their best, the Azaleas and Rhododendrons being in full beauty; one very large plant of Rhododendron Countess of Haddington being a mass of delicate pale pink flowers of enormous size and wax-like texture.

GLASS STRUCTURES IN WINTER—ESSAYS.—Some time ago we offered a silver medal for the best essay on the profitable employment of such glass structures in the winter as are frequently devoted to Cucumbers and Tomatoes in the summer. The response has equalled our anticipations. Out of the number of essays sent in eight are chosen as worthy of very careful re-examination. These are sent under the mottoes (here given alphabetically) of "Excelsior," "Excelsior" (Nantwich), "Henri," "Lego," "One of the Craft," "Practice," "Semper Eadem," and "Viola." We fear that one or two of the essays may not prove of the stipulated length, others appear to have been hurriedly written, and more than one which is well written does not show clearly the results of the practice advocated. All these points will have to be considered, and as we are cognisant of the identity of one contributor (and one alone) the whole of the essays will be placed in the hands of an adjudicator, who possesses knowledge on commercial horticulture, and has had much experience in the examination of essays; his report will be awaited before a decision is arrived at, and before the envelopes containing the names of the essayists are opened.

— THE first annual show of the COVENTRY CHRYSANTHEMUM SOCIETY will be held on Wednesday and Thursday, November 6th and 7th.

— CIDER.—Can any of your readers give me full particulars (or refer me to any book or paper) for making unfermented cider that will keep good for twelve months?—R. BINNS.

— GARDENING APPOINTMENTS.—Mr. W. Whait, for the past thirteen years head gardener at Wyndham Hall, Melton Mowbray, has been appointed head gardener to H. G. James, Esq., The Chestnuts, Oadby, Leicester. Mr. W. A. Jenkins, for the past fourteen years head gardener to Brodie Cochrane, Esq., Aldin Grange, Durham, has been appointed Curator under the Corporation of Stockton of the Ropner Park and Recreation Grounds.

— MR. E. WALLIS, The Gardens, Hamels Park, Buntingford, Herts, writes:—"The weather here during the past month has been very even and genial for the growth of vegetation. The frosts during the past month have not been so severe as usual during April. Rain has fallen on eight days during the past month. Maximum in any twenty-four hours was 0.37 on the 25th. Total during the past month 1.42, against 1.42 of 1894."

— APRIL WEATHER IN SUSSEX.—"R. I." writes:—"The total rainfall at Abbot's Leigh, Haywards Heath, Sussex, for April, was 2.50 inches, being 0.82 inches above the average. The heaviest fall was 0.77 on the 25th. Rain fell on twelve days. The maximum temperature in the shade was 69° on the 17th, and the minimum 31° on the 15th. Mean maxima, 56.12; mean minima, 39.18°. Mean temperature, 47.60°, which is 6.46° above the average. A favourable month, a fair amount of sunshine and no frosts."

— APRIL WEATHER AT DRIFFIELD.—Mean temperature at 9 A.M. (corrected) 47.54°. Wet bulb 44.12°. Mean maximum 54.05°; mean minimum 36.85°. Highest, 64.2° on 21st; lowest, 27.5° on 13th. Mean of maxima and minima 45.45°. Mean range 13.2. Mean radiation temperature on grass 29.65°; lowest 15.8° on 8th. Rainfall, 1.75 inch. No. of rainy days 9. Greatest amount on one day, 0.59 on 25th. Mean amount of cloud at 9 A.M. (estimated) 5.7.—W.G. LOVEL, *York Road, Driffeld, Observer.*

— WEATHER IN SOUTH WALES.—The following is a summary of the weather here for the past month:—Total rainfall, 3.30 inches; maximum 1.17 inch on the 22nd, minimum 0.02 on the 7th. Rain fell on twelve days. Total sunshine, 105 hours 10 minutes; maximum twelve hours on the 15th, minimum ten minutes on the 9th. Sunless days, six. Sunshine did not exceed four hours on twenty days, and on twelve days it was less than two hours. The wind was in the N. and N.W. on thirteen days, S.E. and E. on thirteen days, and for the remainder of the time S.W. Very cold cutting winds all the time, with sharp frosts.—W. MABBOTT, *Gwerllwyn House Dowlais, Glamorgan.*

— ABERDEENSHIRE AGRICULTURAL RESEARCH ASSOCIATION.—The work of this Society in 1894 was largely concerned with an inquiry into "degeneration of Rye Grass and possible recovery." It is argued that in permanent pasture "starvation of plants, and non-utilisation of the plants when grown, are the features to be remedied in order to secure permanent pasture of the valued Rye Grass." The supreme value of *Lolium perenne* in pastures, as demonstrated by Sir John Lawes and others a few years ago, appears to be steadily acquiring additional confirmation in different parts of the country, and the economic importance of the question is beyond all doubt. We are afraid that confusion is likely to arise from the adoption of a practice in vogue at some of the American experiment stations, where the word "legume" is used to denote "leguminous (papilionaceous) plant." In this report we read, "Legumes—i.e., Tares, Peas, Clover, Lucerne, &c." The word "legume" has already a definite meaning attached to it by English botanists, whilst in colloquial use in France it has another and a wider application. Exception should also be taken to the use of the term tubercles (or tubercles) to denote the structures on the roots of leguminous plants. Lawes and Gilbert have, with admirable consistency, adhered throughout to the word "nodules," and it is unfortunate that this example has not generally been followed. Students of agriculture are hearing more and more of tubercle in animals and of the disease termed tuberculosis, and there is a tendency, at least on the part of beginners, to think that all tubercles must be alike. The general adoption of the word "nodules," as used by Lawes and Gilbert, would lessen the possibility of confusion.—("Nature.")

— BLACK GRUB.—Can any of your readers tell me how to get rid of a black grub that I find eats off the stem of Pansies and Iceland Poppies just above the roots? I found as many as eleven of these grubs attacking the roots of an ordinary *Lilium candidum*. Is there any preparation that will kill them without injuring the plants?—L. S. G.

— THE FLOWER SEASON AT THE ISLES OF SCILLY is now about finished. Although prices at the beginning of the season ruled high the returns to the Islands will fall considerably below the average. The early *Narcissus* crop, the *Soleil d'Or*, was a failure throughout the Islands, and the total number sent for the year will be about 100 tons short of last year.

— A NEW BOTANICAL MAGAZINE.—With the somewhat unwieldy title, "Allgemeine Botanische Zeitschrift für Systematik, Floristik, und Pflanzengeographie," a new monthly botanical journal has been started at Carlsruhe, under the editorship of Herr A. Kneucker. Its aim is especially to deal with the study of difficult groups of plants, diagnoses of species, critical forms and hybrids, geographical botany, and the results of the travels of botanists.

— FLOORS CASTLE.—Mr. Williamson may know if he chooses that "Floors" (Floors Castle) means the floors or terraces formed by the river Tweed that flows at the foot of the Castle—that is the definition I have always understood it to mean, and not flowers or *fleurs*. As gardener at Floors during the whole of the seventies, Mr. Williamson will pardon me for the presumption I here take in the correction of his otherwise appreciative description of Floors and its gardens, and its unique natural position.—K., *Belgium.*

— CARDIFF HORTICULTURAL SOCIETY.—The seventh annual show of this Society is announced to be held in the Sophia Gardens, Cardiff, on August 14th and 15th, and the schedule shows many excellent prizes are being offered. One of the chief classes is for twelve stove and greenhouse plants, the amounts offered being, first, £12; second, £8; and third, £4. These should be provocative of keen competition. The Secretary is Mr. Harry Gillett, 66, Woodville Road, Cardiff, to whom applications of all kinds should be addressed.

— THE DEVELOPMENT OF CUCURBITA PEPO.—In the "Bulletin" No. 9 of the "Minnesota Botanical Studies" is an interesting article by Mr. A. P. Anderson on the Grand Period of Growth in the Fruit of *Cucurbita pepo*. From the time of fertilisation to that of ripening the development may be divided into three periods—a period of active and continuous increase from the time of pollination to the grand maximum; one of decline in the daily increase and rise in the daily decrease from the grand maximum to the beginning of ripening; and the ripening period. During this latter period an extended decrease, due to transpiration, lasting throughout the daily hours, was quickly followed by the maximum increase. At the time of the grand maximum the fruit gained 782 grammes in weight during twenty-four hours. The variations in length of the internodes occurred simultaneously with corresponding increase and decrease in the weight of the fruit.—("Nature.")

— BACHELOR'S BUTTONS.—In reading, as I always do with much interest, the articles of the series on "Floral Facts and Fancies," which appeared in the Journal of April 25th, I observe your contributor's remark that the "Aconite-leaved *Ranunculus*" is grown in some gardens as Bachelor's Button. I have heard this name applied to the double variety of *R. aconitifolius*, which, as your able correspondent says, is named the "Fair Maids of France." The true Bachelor's Button is, however, another species of *Ranunculus*, being the double form of *R. acris*. It seems that several other flowers bear the name, and among these are *Geranium Robertianum*, *Lychnis diurna*, *Scabiosa succisa*, and also in Devonshire the flowers of the Burdock, the Pennywort, a small *Chrysanthemum*, and the Feverfew—"Friend's Flowers and Flower Lore." By the way, a curious name in the S.E. of Kirkcudbrightshire for the flowers of the Burnet Rose (*R. spinosissima*) is "Sodger's Buttons," "Sodger" being the Doric for soldier. In connection with the same interesting article you will perhaps allow me to correct what appears to be a press error on page 356. "J. R. S. C.," speaking of the Wood Anemones, says, "Under cultivation as in exotic species the stamens become petals, and a pretty double flower is formed, the Pasque Anemone." I think the sentence should have ended at "formed," and that the words "the Pasque Anemone" should have formed the beginning of the next paragraph. It is perhaps not of much consequence, but one finds how easily errors of plant names are perpetuated, and the Pasque Anemone is, of course, *A. pulsatilla*.—S. ARNOTT.

— **PINK ERNEST LADHAMS.**—Not only as a free-flowering variety in the open, but for growing in pots to give blooms during March and April, this is valuable. In Mr. Ladhams' nursery at Shirley I lately saw several hundred plants that had been flowering under glass, and will continue for some time to come. The best of plants are obtained by inserting pipings directly the first plants have flowered in the open in an almost spent hotbed. They should be planted in well-worked not too rich soil in an open position. Here they will grow stocky, and can either be lifted for pots early in the autumn, or be left to flower where growing.—E.

— **DERBYSHIRE AGRICULTURAL AND HORTICULTURAL SOCIETY.**—The schedule of the Horticultural section of the show of this Society, to be held on November 11th and 12th, has just reached us. There are open classes, and also a number restricted to amateurs, the prizes in all being very encouraging. The principal class is for a group of plants to be arranged in a space of 200 superficial feet, for which five prizes of £20, £15, £10, £5, and £4 are offered. Three prizes of £10, £8, and £6 are offered in another class for twelve stove and greenhouse plants. Such offers should bring very strong competition, and insure a splendid show. Schedules and full particulars may be had from Mr. Sidney Burton, Canal Office, Derby.

— **CUTTINGS, STRIKING OR ROOTING.**—Since I had placed before me the other day a copy of the list of questions set for the recent horticultural examinations of the Royal Horticultural Society I have been gravely cogitating the point which is the proper expression to use in the case of root development in cuttings. Do they "strike" or do they "root?" I do not wish to refine over trifles, for to all gardeners the expression or term "striking" means rooting. But in the case of an examination paper set for students of all classes of the community there is a possibility that the word "striking" as applied to root production by a cutting may be misunderstood. The term "striking" is not an apt or really a correct one. It seems to have originated from the use of the term in another way—cuttings strike root. In the case in question it does seem as if it would have been more proper on the part of high authorities, and certainly in a horticultural as well as botanical sense fitting, to have asked how the process of "rooting" in a cutting was developed, rather than the process of striking.—STUDENT.

— **ANEMONE PULSATILLA.**—This native species of Anemone is at present very attractive in gardens, its finely cut, silky looking leaves and pretty purple flowers being considerably admired. It varies in shade of colour in a wild state, and in cultivation this variation is becoming more marked, a pure white variety being now offered by some nurserymen under the name of "White Swan." In another direction a change in the colour is also desired, this being to obtain red flowers. I was much pleased to receive for inspection some which were kindly sent me by Mr. Mallender of Hodsock Priory Gardens, one of the Journal contributors. These were very fine, and Mr. Mallender is to be congratulated on his success. Some were of a beautiful mahogany colour, and looked very handsome. I have a number of seedlings coming into flower from seeds gathered from a bright red variety by a friend, but regret to see very little difference from the ordinary colour among them. The Hodsock Priory strain seems, however, to be not only a good but a progressive one, and one can only hope that Mr. Mallender will persevere and eventually succeed in improving still further.—S. A.

— **BEES FERTILISING BEANS.**—Replying both to "English Bee-keeper" and "Observer," I beg to say that the only possible aid to fertilisation which bees can give when sucking honey through the puncture at the base of the flowers must be caused by their shaking the blooms. In no other way can they assist fertilisation, as they do not come in contact with either anthers or stigma. Müller is our best authority, and he says in the case of the Bean that "It is visited by *Apis mellifica*, sometimes collecting pollen, sometimes sucking through the holes bitten by *Bombus terrestris*, and 'when collecting pollen' effects cross-fertilisation, as well as those bees which suck in the normal manner."—"Müller's Fertilisation of Flowers," pages 206 and 207.) Darwin also speaks of this habit of some of the bees sucking through the holes bitten in the calyx of Bean flowers at page 405 of "Cross and Self Fertilisation of Plants." He also proceeds to discuss the motive which impels bees to gnaw holes through the calyx and corolla of flowers. I have often wondered if in time the Bean and other plants will develop a calyx sufficiently strong, or evolve some other means to defeat the ends of these pirates. The Bean is supposed to be a native of Eastern Europe or Northern Africa. I wonder if anyone can tell us if the flowers are punctured and operated on in a similar fashion in these parts of the world.—WILLIAM CUTHBERTSON, *Rothsay*.

— **AN OLD PEAR TREE.**—Passengers to Lawrence via the Essex branch of the eastern division of the Boston and Maine railroad may see, says the "Auckland Weekly News," in passing the high bridge approaching Davenport, a wonderful instance of the vitality of the Pear tree by glancing down into the little hollow on the left. It was planted by Governor Endicott, the first head of the Massachusetts Bay Colony, in 1630, and stands on the once famous colonial Orchard Farm. The old tree, a mere shell, with apparently all its inner integuments gone, nothing but the outer bark remaining, and the substance of that split in twain, still stands, and renews again its vernal beauty in a wonderful display of blossoms.

— **BORONIA HETEROPHYLLA.**—Beautiful and useful as is this plant when grown in bush form for the embellishment of greenhouses at this time of the year, it is perhaps even more so when grown as a standard. A few days since when walking through the houses at Messrs. J. Laing & Sons' nurseries I noticed a few specimens so grown which were exceptionally ornamental. Considering the ease with which it may be formed into such a shape it is somewhat surprising that it is not much more frequently seen in private establishments. Naturally it comes in useful for the back of an arrangement, and saves the necessity of using pots or blocks for mounting, which are very likely to prove an eyesore unless carefully covered.—H.

— **WAKEFIELD PAXTON SOCIETY.**—At the meeting of this Society, held on the 27th ult., Mr. B. Whiteley presided, and Mr. W. Hudson of Sandal Grange was in the vice-chair. Mr. J. G. Brown, Curator of Outwood Cemetery, and for many years gardener at Hatfield Hall, read an excellent and practical paper on "The Cultivation of Bulbs for Spring Flowers." The essayist referred to most of the varieties of bulbs for spring flowering, and, speaking from long and successful practice, described the best mode of planting and growing them both in pots and in the open garden. A long and interesting discussion ensued on the paper, and at the close a hearty vote of thanks was accorded to Mr. Brown, who said it was always a pleasure to him to do anything he could on behalf of the Paxton Society.

— **GREEN APPLE APHIS.**—A report has been circulated to the effect that a green insect, abundant in numbers, threatens to do much damage to the fruit buds in New York, Ohio, Michigan, Indiana, and Illinois. Through our correspondents we find, says an American contemporary, that the cause of this report is the green Apple aphid, and that it is restricted to only a few localities. Of it Professor Forbes says through the Illinois Agricultural Board:—"These insects, which have recently hatched from small shining black eggs laid on and about the bud of the Apple, rarely do any permanent mischief in the Apple orchard. The buds commonly unfold so rapidly that their development is not checked, and the insect itself begins to disappear in about three weeks from the time of hatching. It can be destroyed when thought necessary by a thorough spraying with a 5 per cent. kerosine emulsion. In most cases, however, its destruction by this means would be a waste of labour and money, since it is not likely to be undertaken until near the period of the normal disappearance of the aphid."

— **THE WOOD FOR BROOMS.**—There is but a small amount of wood in a broom, but so many millions of these implements are used every year that the consumption of wood for broom handles is a considerable item. "The Southern Lumberman" states that while it would have been almost impossible to sell a broom-handle made of heavy hardwood a few years ago, at present the reverse is true. The manufacturer prefers hardwood because it does not require so large a bolt, can be turned down smaller and yet retain sufficient strength, and can be ornamented more cheaply and artistically. Brooms with hardwood handles sell more readily and do not deteriorate in appearance like the soft wood handles. Any kind of inexpensive hardwood, such as Beech, Birch, Maple, or Ash, makes acceptable handles, while springy woods like the Elms are not saleable, because one essential feature of a good broom is a straight handle. The manufacture of broom handles can only be made profitable when the timber runs largely clear. In the Eastern States the timber waste in making broom handles exceeds 50 per cent., while in the south-west it is usually less than 25 per cent. There are four factories in Amsterdam, New York, one of which has a capacity of 1200 finished brooms a day. They use hardwood handles from the south and west, and get them for less than the bolts ready for the lathe can be furnished from native hardwood. The handles are turned green and dried afterward. The large end on which the brush is wired must be thoroughly dry or the broom will work loose. The drying of the upper part of the handle is of less consequence, except in the saving of freight.

— THE POISONOUS PRINCIPLE OF PRIMULA OBCONICA.—Dr. Riehl of Vienna University, says the "English Mechanic," has been experimenting with the poison of the *Primula obconica*. It was found that the tiny hairs on the leaf and stalks irritated the skin, and gave rise to swellings and inflammation. Dr. Riehl succeeded in extracting the poison, and, by means of injections with it, claims to have healed more than one obstinate skin disease. His experiments are not yet completed, but they are stated to promise good results.

— TROPÆOLUM TUBEROSUM.—In the spring of 1893 Mr. Orchard very kindly sent me two or three tubers of this *Tropæolum*, which were planted on a south border. No flowers of consequence were produced the first year. A thick mulching of leaf soil was laid over the surface in the autumn, and in spite of the 24° frost experienced on the 5th and 6th January, 1894, strong sucker-like growths came up in the following April. During the summer and early autumn the growth was exceptionally free, the bright orange and scarlet flowers being produced in abundance, continuing until the plants were cut down by frost. After the experience of the previous winter I had no thought or doubt of the hardiness of this *Tropæolum*. The usual mulching was given, but, alas! not with the same or anything like similar results. I greatly fear the whole mass of tubers, which had increased so fast as to cover a space fully 2 feet in diameter, is killed. I am exceedingly sorry for this mishap, as the plant was thought highly of by all who saw it. The densely growing leafage forms such an excellent setting for the showy blossoms, which are so freely produced in September and October. It would be useless to attempt to grow this plant in any but a sunny spot, as owing to the gross growth and the lateness of flowering poor results would be obtained in a shady site.—E. MOLYNEUX.

— GRAFTING OLD TREES.—It is now past the grafting season for the year, but there can be no harm any the more in discussing the question, what are, so far as the stock tree is concerned, the best conditions for the production of a fine robust head in the earliest space of time. I was reading recently in one of the papers some rather hot comments on the practice advocated of grafting old trees rather hard back, and advising in place grafting on many branches high up. Now, I do not claim to have had so much experience in this direction as some of your readers, but all the same I have had in my life a good deal, and I invariably adopted the practice of grafting as hard back as I well could, and with the very best results. On the other hand, I have seen many trees grafted high up, but never with to me, whatever they may have been to the operators, satisfactory results. My experience, and it began some forty-five years ago, invariably was that beheading old trees back to some three or four of the stoutest branches, and within a couple of feet or so of the break from the main stem, putting on two, three, or four stout hard grafts as big as a man's finger, very tightly driven home and wedged, then tied and clayed, always gave the first year stout sturdy growths, of which in the winter the weaker could be removed, the rest partially shortened back, and thus was laid the foundation of what became in three years a splendid head. Such results have come in scores of cases. But when a tree is beheaded so sparingly that it has some twenty to thirty comparatively small branches to be grafted smaller grafts are used, and some invariably fail. Then, because of the wide disposal of the sap force in the tree, growths are at the first always weak. Again, because there is so much area of stem left on the stock, growths that are but robbers break out all over it, and unless these are carefully pulled, give immense trouble. When closely headed back such trouble is minimised, and the graft growth, because of the concentration of the sap force, is so much stronger. I have seen no reason to alter my preference for low-down grafting.—A. D.

SPRING BUTTERFLIES.

THAT the majority of British gardeners have no very little admiration for butterflies is a fact. I believe, yet as a tribe of insects they are not markedly enemies of flowers, fruit, or vegetables. Certainly the first butterflies that emerge in spring somewhat numerous, the familiar whites of our gardens, are the parents of a brood of troublesome caterpillars, but most species that we see at flowers do no harm. Indeed, we might consider them adornments to the scene, giving an agreeable addition by their beauty and lively movements. Perhaps during the spring more than any other season butterflies attract our notice both in the open country and in gardens, because for five or six months insect life has been dormant. People have, however, said of butterflies generally that they appear to be lazy members of the insect race, mere honey sippers—quite a contrast to bees, ants, and many diligent species. A butterfly's life is short, and does not call it to active effort except for the continuance of the species, but it is, probably, a useful insect in a way that might not be supposed, that is, when wandering from flower to

flower it sometimes assists the fertilisation of plants by conveying pollen, or dislodging it from the anthers.

I have spoken of butterflies as insects that indicate the arrival of spring, but occasional specimens are visible in the early months of the year, though not in a severe season like that of 1895. These are hibernaters, whose winter residence is in wood and haystacks, hollow trees, or odd nooks, out of which a day of milder temperature draws them for a brief excursion. In January and February it is not unusual to see the brimstone butterfly, or one of the tortoiseshells. The peacock and the painted lady may come forth on a fine March day, but not till April do butterflies newly hatched from the chrysalis show themselves. The first I saw in North Kent this year was on the 17th ult., a large white. The small garden white usually precedes that species by a few days, sometimes it emerges at the beginning of the month should the season be forward. This is an insect quite at home in the heart of cities, where butterflies seldom abide, breeding yearly in the gardens and squares of London where various ornamental Cruciferous plants, *Tropæolums*, *Mignonette*, and others furnish food to the caterpillar, which, like its big relative, also devours vegetables of that order in kitchen gardens, on which eggs have been placed by the parents during the spring or summer, for both species are double-brooded.

One of our familiar writers on garden insects remarks that the butterflies appearing during April and May should be hunted down mercilessly, since it is easier to kill the mother insect than the fifty or sixty caterpillars that will be her descendants. We are not, however, yet used to the sight of a gardener improving "the shining hour" by rushing about with a green or white net in hand, but it is advisable to reduce the numbers of the spring brood as far as possible, by searching for and removing eggs and young caterpillars from their food plants. It is owing to the fact of the first hatch frequently escaping notice, because gardeners have so much to occupy them in the spring, that the succeeding summer brood is apt to be more numerous and destructive, especially to Cabbages or allied culinary species.

Where the smaller butterfly, the *Pieris rapæ*, does unsuspected mischief, is by its artful habit of working into the heart of a Cabbage while young, and lying concealed there till adult. As it happens, the detection of the egg is not easy, but if we light on one others are probably not far off; they are usually placed singly, being like tiny sugar-loaves, only with numerous ribs. The young caterpillar on emergence begins life by eating its egg-shell, an odd performance it seems to us; but the same habit prevails amongst many species. About the second week in May they are appearing on the leaves; many of them may be washed off by tobacco water, any soapy solution, and other compounds found efficacious in the removal of juvenile caterpillars. Though in colour they closely resemble the leaves, birds discover them, and reduce their numbers, the common sparrow eats them, and they are said to be sought by the thrush, also by the wren.

That the large white (*Pieris Brassicæ*) in its caterpillar stage also furnishes food to some birds is unquestionable, but some insect-eaters shun it, probably deterred by its very unpleasant odour, which is an additional cause of annoyance when it is found devouring vegetables. On the average, it is more mischievous than the smaller species, and it has this peculiarity, that there seems to be a succession of the butterflies of the summer brood, so that caterpillars are to be found quite on till autumn, even to the end of October some years. Frequently the eggs are laid in clusters of eight to twelve, each being like a miniature nine-pin. When newly hatched the caterpillars of each batch feed together awhile, which is a help to their detection. The eggs are, of course, best removed before the time of hatching, if observed.

Our crops of Cabbages, Cauliflowers, Broccoli, and also Turnips, would, however, suffer far more than they do from this butterfly were it not for the exertions of a tiny ichneumon fly, the *Microgaster glomeratus*, a four-winged insect, which, under the microscope, is seen to display a beautiful opalescence and metallic brilliancy. Dozens of its grubs live within a single caterpillar residing between the skin and muscles, they devour its fat, but do not kill the caterpillar until it has nearly, or quite, attained to its full size, and is preparing to change into a pupa. Then they issue forth, and decorate the wasted carcass with their numerous golden cocoons, common on walls and palings in winter, yielding a new spring brood of useful flies.

May brings to our gardens the showy and active butterfly, the Red Admiral, or was it at first "admirable," because of its bold colouring? yet another name for it was the "alderman," its red and black hues reminding people of the gowns that some aldermen wore. Swift and courageous is *Vanessa Atalanta*, not limited in its taste for sweets to the honey of flowers, for it often visits ripe fruit, and delights to come on an exudation of sap. Somehow, it has lately got a bad character, and has been referred to as an enemy of orchards, but it does no appreciable mischief, even when it is abundant. The caterpillar feeds on the Nettle, so do those of the small tortoiseshell and peacock butterfly in the same genus, and they have been placed on the list of useful species, being large consumers of what is a troublesome garden weed. Years ago the common butterfly was not unusual about gardens during May, the caterpillars feeding later upon the Red Currant, also upon the Hop. It has now become very scarce and local.

In the good old times we read of the fruit trees suffering from the attacks of the Hawthorn butterfly or black-veined white, its caterpillars being not unfrequent even near London. As a British species it has become comparatively rare, though on the Continent it is still complained of; and some seasons thousands of the caterpillars appear about orchards, selecting for their spring food both leaf and blossom buds.—ENTOMOLOGIST.

MARKET PLANTS AND FLOWERS.

(Continued from page 380.)

WHAT TO GROW.

To make a beginning, and to see the way clear to a profitable result, the commencement of the busy market season should always be borne in mind, and every preparation to meet some of the varied demands of that most important period put in hand, and kept in practice.

It has already been remarked that a grower cannot have too many good Zonal Pelargoniums, in the market commonly termed "Scarlet Geraniums," of the Vesuvius type. The grower should also have a good stock of white and pink Zonals, all autumn rooted, to make good plants by the end of March.

To make up for a deficiency of Zonals some thousands of 48's of Giant Mignonette ought to be sown early in August, another stock later on, and endeavour to keep up a successional supply from the beginning of March. Good seeds ought to be sown thinly, and when ready for market one plant of Mignonette often, but not always, makes a perfect specimen. The plants should be neatly staked, which should be done a few weeks previous to their being sent to market.

Mignonette for market purposes is best cultivated in long narrow pits, placed as near to the glass as possible, and the lights taken right off on all favourable opportunities; at no time give the plants more artificial heat than what is really necessary to keep secure from damage by frost. A single flow and return pipe will be sufficient, and if the return is diverted so as to occupy the centre of the pit after the first sowing of Mignonette has been marketed, which ought to be by the beginning of April, fill the pit with masses of "Geranium" cuttings in 60's, give plenty of heat, and they will all be ready for market just at the proper time, the beginning of May, and will be no trouble to sell. After the spring-rooted plants fill the pits with Cucumber plants, and so carry on the season until it is again time to sow the Mignonette.

Be careful to have the soil used for Mignonette perfectly free from worms, a loamy soil is the best, and one layer of crocks is sufficient. The soil should be pressed firmly in the pots, and if the seeds are good a few for each pot will do; they should be lightly covered and the surface pressed level, standing the pots where no worms can enter the soil, finally placing them in their winter quarters. Several sowings may be made, once a month. Mignonette if grown well always finds ready sale up to the month of July, when the plant season may be said to terminate. Then the grower should double his diligence, and concentrate all his energy in propagating for another season. "Geraniums" of the Vesuvius type, also Jacoby, tricolors of the Mrs. Pollock type, as also the silver variegated sort, and golden bronze, sell better in large 60's than in 48's, because they are more in request for bedding than for other decorative purposes; also the double pink Ivy. This variety, with the scarlet Vesuvius and the dark crimson Harry Jacoby, should be well established in 48's by the beginning of January, but not allowed to grow too much unless wanted for propagation. The aim of the cultivator should be to grow sturdy plants about a foot high from the pot, with three or four shoots, and by April there should be no difficulty in having them with three or four well-expanded trusses on each plant. Any of the shoots which show a tendency to grow stronger than the others may be cut off at a suitable point and made into cuttings; on no account let the least part be thrown away, for a penny saved is a penny gained.

The double Ivy "Geranium" will require a little more attention by placing a neat stake in the centre of the pot, and about 15 inches high. The plant should be induced to break into four or five shoots, which must be neatly looped to the support, and when about to bloom the flower stalk should be so trained as to have the flowers just on the top of the plant and close to the foliage; then it looks extremely pretty and is most saleable.

Should the scarlets be growing too luxuriously, say about the month of March, and short of house room, it is a good plan to shorten the shoots of every other plant, and so prevent overcrowding. The plants so cut back will soon break, and so follow the earlier ones to the market. The Fancy Pelargonium used to be largely employed by the London florist for the furnishing of windows and balconies, but since the introduction of the Marguerite this pretty class of plants are not in such request. Nevertheless, good healthy plants in 48's, well bloomed, always find ready sale in the months of May and June.

All the Pelargoniums grow luxuriantly in rich turfy loam with abundance of coarse sharp sand to keep it open and sweet. The loam and the sand should be well prepared by throwing in a heap, chopped over and over, and finally passed through a coarse sieve and placed where it may be always ready for use. The siftings are useful to place over the drainage in the bottom of the pots, and should always be preserved for that purpose.

Summer and early autumn-rooted stock make the best plants for 48's, and if each cutting be rooted in the smallest thumbs, and then transferred to 60's, no check is given to the plants, and they may be had in form by the beginning of the year. The plants should at all times be kept as near the light as possible with abundance of air on all favourable times, even in January and February if mild and no likelihood of frost. The fires should be kept low but ready, and air freely admitted to the plants. As the sun increases in brilliancy it becomes necessary to apply a little shading to the roof; a drying wind and a scorching sun is almost as harmful to the plants grown as a winter blizzard.

If the glass is good and any clay or lime in the neighbourhood, a handful or two well dissolved in a pailful of water, and syringed over the outside of the glass, is a very easy and inexpensive shading; a shower of rain may wash it off, and is welcome to do so, for the moist atmosphere with April sunshine is most conducive of healthy and robust vegetation. Should the liquid shading by any chance get through the glass and spatter the foliage, wash it off previous to sending the plants to market or to the purchaser, and so maintain the reputation of the establishment.

The White Marguerite, with its cheerful looking flowers so much like the "Gowan," leads one into a reverie, and to remember the old love song, "Meet me on the Gowan lee." Thousands of persons toss up their heads and declare that the French Daisy is nothing more than a perfected Gowan, and pity the taste of those who use it largely for floral embellishment.

The good grower pays no heed to such fancy, but endeavours to cultivate what takes the public taste, and keeps rooting and increasing what he knows will be wanted in due season. For a certainty the White Marguerite is one of those plants which take hold of public favour and will continue to do so for some time to come, for without doubt it is the most appropriate flowering plant which has ever graced the outside of a window. Though at the same time there may be too much sameness in the way the plants are displayed in the windows and balconies of the metropolis. A little more colour or greenery, such as a graceful Palm or two overtopping the flowers, is more artistic.

The White Marguerite may be had in flower all the year round, but from the middle of April to the end of June, Covent Garden Flower Market can have no glut of good plants. In season they may be found in the conservatory, in the hall, on the staircase landing, on the side table, in the fireplace, in the window boxes, on the balconies, even to the housetops, and they never seem out of place.

The Marguerites which command the best price and ready sale are those plants which are about 15 to 18 inches high and as much through. When the plants are ready for market each should be encircled and compressed with a single and almost imperceptible slip of matting, which will allow the plants to be packed more closely.

It will be found that the best plants are developed from summer-rooted cuttings, choosing healthy stock and perfectly free from the fly. The old stools should not be thrown away. If they are shaken out of their pots, cut well back, and repotted into smaller sizes, using fresh stiffish loam, they ought to make splendid plants for another year.

In the winter months keep the plants as near to the glass as possible, and when they begin to fill out and require more room every other plant may be shortened. The cuttings may be put in thumbs, three in each pot, and as soon as rooted shifted and grown in larger. They will be capital stock by June. On no account let the Marguerites be overcrowded, nor yet give them a close humid atmosphere. Give them abundance of air and supply a little stimulant as they approach inflorescence.—A. M.

(To be continued.)



LA FRANCE ROSE.

WE figure a bloom of La France Rose, not grown by a great amateur rosarian, but by the possessor of a suburban garden—Mr. R. W. Gardner, Shirley Villa, Palmer's Green, Middlesex—who was proud of it, as well he might be. It was one of the finest we have seen, and might be described as one of the most charming of Roses represented in fullest beauty. The plant was bought in January last year from Mr. Watson, florist, Bowes Park, N., placed in a pot, which was plunged in the garden, the pot resting on a tile, for preventing the ingress of worms. There it remained till the winter, when it was slightly pruned and removed to a greenhouse. The soil used in potting was turfy loam. A top-dressing of decayed manure was given before the plant started into growth, supplemented by occasional applications of liquid manure, and it goes without saying that insects were not allowed on the plant. Mr. Gardner is to be congratulated on producing this splendid bloom.

SEASONABLE NOTES.—MARÉCHAL NIEL UNDER GLASS.

I READ with interest the remarks of "H.R.R." (page 362) on this head, and am much surprised that he recommends grafted plants for the growth of this grand Rose. I have no doubt that half-standards trained in regular upright rods under the glass, and cut clean away to the horizontal arms at the conclusion of flowering, on the system described more than once in the Journal, will produce the finest blooms, and I should think more of them per square foot of glass can be raised than in pots.

To show the faith that is in me I have forwarded half a dozen blooms to the Journal office. The plant they were cut from is an ordinary half-standard, planted some ten years ago at a cost of, say, 2s. 6d. The space it covers on the roof of my greenhouse is 17 feet by 12. I have already this year cut 251 such blooms on this space, and there remain buds for future cutting to the number of 292, total 543 to 204 square feet of glass. The blooms I have sent are a fair sample of those already cut,

and I do not hesitate to say that a large majority of them have been fit to show in any stand of Teas I have hitherto exhibited. I should be glad to know if anyone can beat this for quantity and quality with regard to space, by any other system of growth and training.

It is fair to say that this is a crop above the average in point of numbers—it has generally been between 300 and 400. Some check occurred at an early stage of growth to several of the laterals, which broke again, giving two and in some cases three blooms to one eye. I ought here to say that in speaking of 543 blooms, I mean “trusses,” only one Rose being allowed to each shoot. And I must also say that some of these and the later buds, perhaps a third or a quarter of those that remain, appear to be smaller and below the average of those already cut.

ROSE MRS. W. J. GRANT.

It is a matter of congratulation to all rosarians that this fine variety is now to be procured in this country; but I am very sorry to see it advertised under another name, and I earnestly hope that all Rose growers will make a point of ordering it, speaking of it, and exhibiting it under its real name. In the case of those varieties declared by the N.R.S. to be duplicates, there is an unwritten law that the oldest name shall stand, and this is properly and strictly carried out in the N.R.S. catalogue.

But this is not a matter of a “too similar” variety, but the veritable same Rose, which, as named Mrs. W. J. Grant, received the gold medal as the best Rose of the year in 1892. Of course, they may call it what



FIG. 68.—ROSE LA FRANCE.

The first bloom was cut on April 11th, and to all appearance they will last longer than usual, beyond the middle of May. I have no idea of the money value of such blooms, but I should think it would make a pretty fair return per foot run of glass. The outlay is a trifle, the labour very small, and I have had practically no mildew or green fly. One of the two horizontal arms is at last weakening through canker, but I have already trained another shoot to take its place. The system of training was fully explained in “Manners and Customs” in the Journal, and “The Book of the Rose.” I take no credit for it, it is not my invention. I got it from some paper, I think the Journal itself.

[The Roses received were of the first order of merit, and the leaves in their way as fine as the blooms. They arrived as fresh as when sent off, through each bloom being carefully enclosed in “butter paper,” which, while being soft, prevents the escape of moisture from the blooms. It is likely to be tried in the packing of Tasmanian Apples for transit to this country. We wonder whether this packing for Roses is the invention of Mr. or Mrs. W. R. R.]

they like in America, and that is no business of ours; but I hope to find a general consensus of opinion that a Rose raised in the British Isles, named here, and under that name receiving a special mark of recognition from the N.R.S., should retain that name in this country; indeed, I should vote against any proposal that the other name should be added to the list of synonyms. It would be best to make no comparison whatever between the two names, but simply to adhere to our own as a matter of right.

[Unquestionably Mrs. W. J. Grant is the correct name of this Rose, and no other name should be recognised in the United Kingdom, whatever may be the case elsewhere.]

EARWIGS.

The “black grub” is already making its presence felt pretty widely, and I fear, as lately stated, that insect pests may prove rather a nuisance this season. Earwigs are a trouble to us as well as to our Chrysanthemum friends, and a rosarian may therefore perhaps be pardoned

for taking an interest in Mr. Briscoe-Ironside's "Earwig Baffler" (page 341).

I confess I was very much surprised at the whole thing. A patent for keeping away from a plant an insect possessing a splendid pair of wings, by means of a slender rim containing water level with the ground, seems to me one of the funniest things that have appeared in the Journal for a long time. It reminded me of the ancient libel against the men of my native county (Somerset), that they built a hedge to keep the cuckoos in.

It was plain there must be some explanation, and it is to be found in Mr. Briscoe-Ironside's words (p. 341), "I think there need be little fear of its flying upwards, as having watched this insect very closely for some years, the only object of its wings, so far as experience tells me, is to check rapidity when falling, serve as a parachute as it were." I would like to ask him if he has ever seen this done; if he has ever seen an earwig dropped from the hand to the ground, use its wings to break its fall. I have certainly thus dropped a good many scores, and should have been very much surprised to see it. Why, hardly any beetle or chafer can open its wings when falling a short distance, and none of them has its wings so wonderfully compacted and folded over and over as an earwig. It is probably a slow and elaborate ceremony with an earwig to commence flying, but once started there need be little doubt I think, of its power to fly "upwards." Will "Entomologist" be kind enough to say whether an earwig can fly over an inch or two of water, or as high as the leaves of a Chrysanthemum plant?—W. R. RAILLEM.

HERBACEOUS PLANTS IN JULY.

FOR flowering during the month named the following kinds have given me satisfaction, and as it is not yet too late for planting many of them (which are plunged in pots in nurseries), a record of my experience may perhaps be useful to some readers.

Border Carnations.—The great improvement which has taken place in this class of late years has given us plants which greatly enrich our herbaceous border. I can never, as an old florist, disparage the beautiful flaked Carnations and delicately edged Picotees which have formed the delight of so many generations of florists, but their very delicacy of colouring deprives them of their effectiveness as border plants, and for this purpose they have been superseded by what are now called border kinds, and in the beautiful additions made by Mr. Martin R. Smith and Mr. Douglas (in yellows) and other growers we have some very charming flowers. Such varieties as Mrs. Reynolds Hole, Theodora, Kettin Rose, Niphetos, Mrs. Muir, and others come in most effectively, especially when grown in small clumps, and during this month afford a copious supply of sweet-scented flowers.

Coreopsis grandiflora.—This is the best of the herbaceous varieties of this genus; there has been some difficulty as to its being confounded with lanceolata, but as a free-flowering bright yellow plant it is very desirable.

Centaurea macrocephala.—A very large, showy, if somewhat coarse plant. Though it is more suitable for larger gardens than mine, it is so very handsome that I do not care to be without it; but here it is only suitable for the back row of a wide border.

Aquilegia chrysantha.—While the greater number of the Aquilegias are attractive this is one of the boldest and most beautiful, and coming later into flower than the others, remains for a long time in beauty after they are past and gone. It is, therefore, more easy to keep this true than any of the other Aquilegias. There is no class of plants which is so readily cross-fertilised, and therefore the attempt to keep any species distinct is an almost hopeless endeavour. I used various devices with such plants as Aquilegia cœrulea, and thought I had succeeded in keeping it distinct, but the seedlings have been more or less incorrect, not one of them coming perfectly true.

Telekia speciosa.—This is another very striking yellow-flowered plant, but like the Centaurea rather coarse, and must also be consigned to the back row. It is not so soft and tasselly in appearance as Inula glandulosa, but for all that it is a plant which one would hardly like to be without.

Geranium pratense fl.-pl.—One of the most beautiful forms of our native Geraniums, very free and vigorous, the flowers continuing for a long time in perfection. It is abundant as a wild flower in the North of England, but is not found down South.

Linum perenne.—This very beautiful blue perennial Flax continues a long time in flower, and its brightly coloured blooms, similar to those of the annual species, are very acceptable, although they have, like others of the genus, the habit of closing their flowers early in the day.

Catananche bicolor.—A very common Everlasting-like flower, producing its white and blue flowers on the same plant. It is very useful for cutting, and continues in bloom for several months together.

Stenactis speciosa.—Sometimes called Erigeron. Although this is a somewhat common flower it is one of those which no herbaceous border can very well dispense with.

Tradescantia virginica.—Both the blue and white varieties of this well-known plant are very showy, and easily grown, as they will thrive in almost any garden soil, and require to be kept somewhat within bounds.

Bupthalmum salicifolium.—One of the best of the genus, with bright yellow forms forming a succession of blooms for some weeks.

Eryngium giganteum or niveum.—Why called giganteum I can

hardly see, as it does not grow nearly so tall as Oliveanum or amethystinum, but both are most desirable border plants. The peculiarly metallic blue of the latter, which is common to both stalks and flowers, makes it a most desirable plant, while the character of the foliage of both keeps them a long time in perfection.

Monarda didyma.—This, one of the oldest flowers of our cottage gardens, where it is generally known as Bergamot, deserves a place in every herbaceous border on account of its peculiar colour and strong and pleasing perfume, but it is not nearly so often planted out as it ought to be.

Cypripedium spectabile.—This, the most beautiful of the North American terrestrial Orchids, delights in a cool and moist situation, being generally found in swampy places. I have had a good display of it for many years, and it is always to me one of the most attractive of my July flowers. The drought of 1893 did not at all suit so moisture-loving a plant, and although it bloomed again well this year it has not been nearly so luxuriant as previously.

Orchis foliosa.—This beautiful Madeira Orchid accommodates itself easily to our climate, and although I have never had it in the same perfection as I have seen it in other gardens, it forms a conspicuous object when in flower.

Alströméria aurantiaca.—This, which is almost a weed in many gardens, I could not for some time establish in mine, but have at last succeeded. I do not know why it did not thrive with me at first, as I had done what I could to induce it to grow, and am very glad indeed that it has asserted itself at last.

Such are some of the more noticeable plants which flower in July. I have left out many others, such as the Spiræas, Galegas, Gaillardias, Heleniums, and Potentillas, but I think I have shown that even without the use of bedding plants a garden may be full of flowers for those who trust to herbaceous plants alone, while their great variety both of form, colour, and perfume gives them advantages which bedding plants do not possess to anything like the same extent, while for cutting purposes for the house they have, I think, a very distinct advantage.—D., Deal.

EXPRESS GRAPE GROWING.

SOME interesting details have lately been given in the Journal of cases of "Express Grape Growing," and the results chronicled are really remarkable, especially so in the case of the Vines planted out of 3-inch pots in the middle of August, when no thicker than straws!

That these Vines covered the house with splendid well-ripened wood before the end of the season is wonderful, seeing they had, as your correspondent "W. H. L." remarks, "only the tail end of the summer" in which to change from straw-like canes into splendid Vines, capable of producing heavy crops the very next season.

Had the Vines been planted earlier in the season and been even moderately good canes when planted, the results attained to would have been capital, but, of course, not so remarkable as is this case of weak Vines planted late in the year.

In 1870 we planted the bulk of our Vines here from eyes rooted in February of the same year. They were rooted and grown on in the bed of a Pine pit, on turves, with some fine soil on top. The Vines were twice root-pruned in the bed—first lengthways, then across. They were then lifted and placed in a similar bed of turf and fine soil, only wider apart. They grew rapidly, and when about 3 feet high they were again root-pruned in a similar manner to their first root-pruning, and suffered no check. The consequence was that when we lifted them for planting they were vigorous Vines, with a mass of fibrous roots peeping out at all sides of the squares into which the turves had been cut. We planted some of them in May, some in June, and some in July, and they all did splendidly, running up to the tops of span-rooted houses 18 feet high, and filling all the roof space with grand wood and foliage. When pruned the canes were hard and well ripened, and from 3 inches to 3½ inches in circumference.

Though the permanent Vines could easily have borne a good crop the next season we decided to let them have another year's unrestricted growth, not burdened with even a single bunch. The temporary Vines, however, bore a good crop that year, and finished the fruit splendidly.

The permanent Vines we planted thus in 1870 still continue to bear annually as well as could be desired, and we look on this as very good work, seeing the Vines have for so many years been producing heavy crops of the best quality Grapes, and they were not all planted in good soil.

We could not get very much good turf when they were planted, and many of them had to be content with very poor stuff indeed. We, however, found out what suited them in the fertiliser line, and continue to benefit thereby by having the pleasure of seeing the Vines so vigorous and fruitful after so many years of heavy cropping.

In our case no claim for special express Grape-growing is made. We planted the Vines in the best possible condition. They grew so well and ripened their wood so thoroughly that all of them could have borne heavy crops the next year—that is, in less than nineteen months from the time the eyes were put in we could have had them all bearing a heavy crop had we so desired. But we deemed it more profitable only to crop the temporary Vines, and let the permanent canes have another season in which to mature.

We have no reason to regret the system we adopted, and if planting Vines on a large scale again would pursue the same plan.

It will be interesting to note the future progress of Mr. Innes' Vines.

In common with "W. H. L.," and no doubt many more, I shall be glad to hear that these remarkable Vines continue to flourish and fruit as well as at present.

There can be no doubt that had they been properly grown before being planted, and had they been planted earlier in the season than they were, they would have been even more remarkable than they have proved.

Many Grape growers for market contend that it is more profitable to plant after cropping heavily every year, and replanting whenever signs of failing vigour are shown, than it is to take moderate crops and maintain the same Vines in vigour for many years.

This is a matter open to debate, and some, of course, take one opinion and some the other; but I think there is no difference of opinion regarding the desirability of having good Vines when planting. It is certainly a great advantage to have this, and when such poor Vines as Mr. Innes describes, are planted late in the season, it is almost miraculous when they do so well, and are able to produce such heavy crops the next season.

The use of Grapes—well ripened and of good variety—is most beneficial to the health of the community, and that they are now so abundant is matter of considerable moment, as they can be had by all at reasonable prices. Indeed the producer has now come to consider the prices as rather too reasonable for the consumer, and rather too unreasonable for himself.

No return to the good prices of bygone years can be looked for. Every year, doubtless, the quantity of Grapes sent to market will increase, and when we hear of such wonderful crops produced from such material in so short a time, it seems likely that the markets will be glutted in the future.

The public, however, should learn to discriminate between well grown and indifferently grown Grapes. They are as different as night from day. Get a good well-grown and ripened Black Hamburgh, Muscat of Alexandria, Duke of Buccleuch, or Madresfield Court, and you have splendid flavour and quality. Get a good Gros Colman or Lady Downe's, grown and ripened with abundance of heat combined with judicious airing, and they are vastly different from the ordinary run of Black Alicantes grown in a cool atmosphere and with the proper qualities not developed, though of course at best the Alicante is a second-rate Grape, still it can be improved by proper culture.

What we want in the future is—in addition to "Express Grape growing"—proper Grape growing, that is, such culture as will not only produce quantity but quality.

There is nothing to prevent this being done, if only the right means are used, and then we should have the British public not only consuming more Grapes, but realising what fine things they are, how health-giving, how refreshing, and how luscious.—JOHN THOMSON, *Clovenfords*.

I HASTEN to set Mr. Colebrook's mind at rest by assuring him that I have made no mistake, and that every word I have stated to be perfectly accurate. They are accomplished facts, and well known to many who saw the Vines and Grapes for themselves. I would refer Mr. Colebrook to my first letter (page 328), and respectfully request him to read it again, as he is evidently labouring under a misapprehension by stating in his article on page 386 that my Vines carried ten and twelve bunches, each averaging $2\frac{1}{4}$ lbs. What I did state was that the permanent Vines carried seven bunches, averaging $2\frac{1}{4}$ lbs., and the supernumeraries ten and twelve bunches, average weight $1\frac{1}{4}$ lb.

When on a visit to Gordon Castle Gardens, Morayshire, late in the autumn of 1877, I saw there, under the able management of that grand old gardener, Mr. Webster, a house of young Vines which had been planted in the month of July, raised from eyes that season, and at the date of my visit, somewhere towards the end of November, these Vines had made a growth of upwards of 20 feet of splendid wood. I cannot say whether Mr. Webster fruited them the following season or not, but I certainly should have had no hesitation in doing so.

I quite agree with your correspondent, "E. M." (page 386), that time alone will prove whether the cropping of young Vines at so early a stage of their existence will prove injurious in the long run. I do not think for a moment that Vines judiciously cropped under good management need suffer in the least degree. A large amount of discretion is needed and must be exercised, and the general condition and strength of the Vines taken into consideration, which must be the guide in determining the amount of fruit each Vine is capable of maturing; and then so much depends on the general management, including feeding. What is a success in one man's hands frequently turns out a failure in the hands of others. I have a very grave doubt as to whether Vines at the age of fifteen, twenty, or thirty years, even under the best of management, would compare favourably with Vines of a younger growth. I know of some old Vines which are giving marvellous results in the hands of good gardeners; but I think "E. M." is too able and experienced a gardener to admit that there are many Vines at the age of twenty or thirty years worth retaining as compared with young Vines. I find there are but few market growers in the present day who care to waste time with old Vines, and depend upon it they are not the men to throw away that which is most profitable.

I think Mr. Geo. Bolas' interesting letter (page 386) goes to prove that in his case, after fifteen years' trial, the express system has been a success. Looking at this subject from a market grower's point of view, it becomes a matter of vital importance in these days of keen competition. With small profits, quick returns become more and more a necessity, and I fear the signs of the times point to a still smaller

margin of profit in the near future. It therefore behoves us to be up and doing. Grape growing in the present day to pay requires both quantity and quality and no waiting. Mr. Bolas gives us a cruel reminder of the "good old days" when Grapes realised 25s. per lb. What a contrast with the prices of to-day! "Nemo" also reminds us on page 375 of the Journal that in those days Grapes were confined to the table of the wealthy, but now they are within the reach of the poor.

I will give, in the way of information asked for by "E. M.," a brief record of Vines planted in ten years ago, and in doing so I find it raises another important point—viz., the effect heavy crops of Grapes may or may not have when allowed to hang on the Vines through the winter and well into the months of February and March. I planted upwards of 300 permanent Vines in 1885. About 250 of these were one year old, the remainder were raised from eyes the same season. The first named were planted in April and the latter towards the end of May, with about 300 supernumeraries also raised from eyes that season, and planted when about 12 inches in length. When each had made about 8 feet of growth they were stopped and again allowed to break, and long before the end of the season they had reached the top of the house.

The following year the oldest Vines carried seven bunches each, and those we raised from eyes the previous season carried five and six bunches each and finished the fruit to perfection. As a test question as to the effect the early cropping may be supposed to have on Vines I will select one particular house, which has passed through what may be considered the most trying ordeal. The vinery is a steep-pitched span-roofed house, 100 feet by 24 feet, and was planted with eighty-two permanent Vines (Gros Colman), 2 feet 4 inches apart. The entire crop was allowed to hang each year, with one exception, into the months of February and March. I regret I cannot give the exact dates when the cutting of the crop in this house commenced each year except in 1892, when a note was made of the weight of crop, but being the last house for eight consecutive years I give the following dates, taken from the day book, when the last was cut—viz., March 11th, 1887; March 7th, 1888; March 15th, 1889; February 24th, 1890; March 7th, 1891; February 15th, 1892; February 27th, 1893; and January 30th, 1894; and from the time the last of the fruit was cut until the house was started again did not exceed a fortnight, except in the years 1892-94, when they had about a month's rest, and these Vines are as vigorous and carrying and finishing as fine crops of Grapes as ever, but how long this may continue I am not going to predict.

I thank Mr. Bolas for the compliment he pays me, and I hope at some future time to give a brief account of the house he refers to.—W. INNES, *Derby*.

SPRING PRUNING.

THE leader, page 373, lays before readers clear facts that anyone living in the country may see for himself. It is a great pity that there are thousands of trees in exactly the condition as "A Traveller" describes. No doubt the owners and planters are very much to blame for allowing the trees to continue in such a miserable plight.

There is also another side to the question that should not be lost sight of. I allude to the state of the trees when received from the nurseryman or fruit tree vendor. Some growers of trees for sale allow them to "run up" in a far too limited space of time to enable them ever to make really good trees until they are taken in hand by persons who have not the same reason for doing so. When fruit trees are allowed to remain 4 feet and more in height after the growth from the bud or graft at the first pruning, what can we expect such trees to do the year following?

Will one tree out of twenty managed in this manner ever make a decent bush or pyramid of either Apple or Pear? I say No without hesitation. The grower of this class who points with apparent pride at his Apple trees 5 feet high for the low price of 9d. each is not the man to teach would-be fruit growers how to manage their trees. As I have scores of times told cottagers and amateurs who required a few trees for their garden, far better pay 2s. for a really good tree than the 9d. for such an one alluded to above.

When we see inexperienced persons leaving 6 inches of growth on espalier trained Apple trees that already have spurs several inches long, how can we expect mismanaged young trees to be put into a better shape? These are not simply matters of assumption, but hard facts, as I have experienced many times, and in two particular instances last month only. In one case trees had been received from a nurseryman of reputation for other goods than fruit trees evidently. They were of the class noted 5 feet high, with one or two straggling branches 1 foot from the ground. Above this a clear stem 3 feet long, and a few more branches at the top. Here was a specimen for a person void of experience to tackle. Now, "Mr. Traveller," you could hardly blame the owner if two years hence this tree had not grown into a good one, could you?

In spite of the amount of garden literature available, lectures and private tuition, it is astonishing what a mass of ignorance still exists on fruit tree cultivation. Plain horticultural teaching in schools will do much towards enlightening the future generation, certainly. The present tyros must look to their own interests somewhat, and pick up information where they can. Nurserymen have the opportunity to educate this class; some of them do right well by sending out properly managed trees. I find this class of cultivator—cottager and amateur—is quick to follow example; none is better than a young fruit tree having a well-laid foundation.

One other point in "A Traveller's" article, planting trees at this season. It is generally admitted that the best season for fruit-tree planting is directly the leaves fall. Granted that this is so, some persons think though that if circumstances do not favour this being done one year they must wait until the next year before planting. Obviously this is wrong. Surely a tree planted in April, carefully tended through the summer, mulching the surface soil, and supplying moisture as required, must be in a better condition next November than one newly planted. It is surprising what a number of roots are formed by April-planted Apple trees in five months. It is the condition in which the roots are found at all periods of their existence that insures success or otherwise.—E. MOLYNEUX.



CHRYSANTHEMUMS IN VASES.

FROM Mr. Pulham, the well-known rockery builder, who combines terra-cotta pottery with his business, I have received a very useful specimen of a vase for growing and flowering Chrysanthemums in. Instead of the well-known terra-cotta the vase in question is stone colour, the sides being ornamented with clearly defined Chrysanthemum leaves. In size the vase measures 13 inches in diameter, and is 18 inches high. Where vases on terraces or by the side of paths or in the conservatory are appreciated capital plants could be grown, producing a splendid effect. For open air flowering the early section like the Desgranges family, Ryecroft Glory, Comtesse Fouchier de Cariel, or Roi des Précoces would be found the most suitable. In vases of the size named there is ample space for three plants.

LATE-FLOWERING CHRYSANTHEMUMS.

In the face of such sterling varieties for late flowering as L. Caning, Leon Frache, Mons. E. A. Carrière, Golden Gem, W. H. Lincoln, and the newer Challenge, the varieties alluded to on page 387, which Mons. Delaux is sending out, will have to possess points in advance of those named before they will be accepted by English cultivators. Like "C," I trust all will be thoroughly tested before being put into commerce. Much disappointment will be saved by rigid selection of seedlings in the future. None but what is really an advance on older ought to be encouraged. The public has had, in the past, too many of these so-called improvements that they are chary about speculating in novelties except the recommendations are *bona fide*.

HAIRY CHRYSANTHEMUMS.

Taken as a whole the craze for this section has not kept pace with its first instalment. The advent of Mrs. Alpheus Hardy created much interest, curiosity, and admiration. Undoubtedly the alpha of this section is still the finest of the whole batch when seen in its proper form. Many persons have not only discarded this variety on account of its being "miffy" in growth, but they have committed the whole race to the rubbish heap. Nowadays cultivators and visitors require that a Chrysanthemum shall not only possess novelty but some beauty as well. It cannot be said that the hirsute appendage on the florets is any gain for vase decoration in a cut state.—E. M.

NEW ANEMONE CHRYSANTHEMUMS.

LAST season there were several excellent exhibits of Anemone varieties at the shows. In spite of the trade protest that they do not pay, I was hopeful to see some valuable new additions announced this spring from the Continent. Out of several hundred novelties of all sections, I have only been able to discover two of the Anemone type offered for distribution. Simon and Descartes were perhaps the best of 1894, the former being particularly fine in form and delicate in colour.—P.

AN AMERICAN CHRYSANTHEMUM ANNUAL.

THE "Florists' Exchange" of New York, in reviewing the "N.C.S. Year Book," remarked that "The success of this venture from a literary standpoint is but another reminder of the need of a publication of a similar nature in this country."

From a private letter to hand last week I learn that a gentleman well known in American horticultural circles has been engaged for some time on such a work, and that it is in the hands of the printers, and will be ready for publication in a short space of time. To those who are interested in watching the novelties from the other side of the Atlantic such a work will no doubt be acceptable.

It would be instructive to know at the same time when the American Chrysanthemum Society contemplates issuing a new edition of its catalogue. The last and only one we know of was printed in 1892.—CHRY.

MORE LONDON PARKS.

THOUGH the name of Victoria Park is not such a household word as either that of Hyde or Regent, it is for natural beauty and brilliancy of the spring bedding in no way inferior to either of these. In the long

sweeping drives and pleasant walks of the former the fashionable inhabitants of the West End may ride or stroll at their leisure, while in the latter, thanks to the meritorious endeavours of the London County Council, pleasures of an equally high order are provided for the thickly populated masses of the East.

It is needless to add that these are appreciated in every sense of the word, but the full extent is only known to the crowded dwellers in these parts, who are at liberty to roam at will through a maze of verdant and floral beauty, the like of which up to recent years could only have been found in the private domains of the wealthy. The sporting element is likewise catered for, as on a wide expanse of green sward no less than thirty-six cricket pitches and a like number of tennis courts are prepared and kept in order, while for those of a gymnastic turn of mind a whole complement of apparatus is provided. The children, too, are not forgotten, and one of the most interesting corners in the Park is the space set aside for the gambols of those under twelve years of age. Swings and such like are provided, and in addition to these is a huge bed of sea sand, brought expressly from Lowestoft for the purpose, and here the little urchins sport and play to their hearts' content; that they thoroughly enjoy it may be gathered from their merry peals of laughter and the expressions of mirth that may be seen in their young faces. For older boys a capital bathing place is provided, and after four o'clock on bright afternoons it would not be exaggerating to say that the water is alive with them.

But why am I wandering from my subject? It was the flowers I went to see, and truly they were worthy of a visit, in spite of the fact that the Hyacinths and many of the Tulips were on the wane. The beds are numerous and extensive, and the number of bulbs taken in planting them must be very considerable. They are all laid out and planted with artistic taste, the colours being blended in such pleasing unison that could only call forth ejaculations of approval from the most severe critic.

One bed, producing a fine effect, was planted with the showy Tulip Keyser's Kroon and yellow *Doronicum plantagineum*, mixed; while another was rendered gay by Tulip Rose Gris de lin and Auriculas. Large beds of Proserpine were also displayed, as were also others planted with Tulips Joost Van Vondel, La Belle Alliance, and Thomas Moore respectively. In the centre of this group was a large mass of the purple Tulip Van der Neer, surrounded by the sweet scented and effective Yellow Prince. Nothing added more grace to this brilliant display than beds of that favourite old Tulip White Pottebakker, with its tall heads of flowers towering up and rippling gently in the breeze.

The Hyacinths were unfortunately past their best, but those remaining of La Grandesse, King of the Blues, Charles Dickens, Czar Peter, gigantea, and Lord Macaulay gave a good idea of what they must have been when in their beauty. Among the Daffodils were beds of Sir Watkin and Horsefieldi, while in others were noticed masses of bright Wallflowers (a rare occurrence this spring), and such old favourites as Polyanthus, Auriculas, Daisies, and Pansies.

A pleasant feature in Victoria Park is the large number of forest trees planted in avenues, and the flowering and ornamental shrubs. The showy blooms of *Magnolia conspicua* peeping out from a background of foliage were a picture in themselves, while the large trees of wild Cherry clothed with its snowy white flowers proved a pleasing contrast to the brilliancy of *Pyrus japonica*. Lilacs, Laburnums, and Thorns are all full of bloom buds, and on the verge of bursting forth.

Any notes on Victoria Park would not be complete without a mention of the glass structures and the extensive operations that are going forward for the preparation of summer bedding. Thousands of *Pelargoniums* are being hardened for this purpose, all sturdy plants and in good condition; and in addition are to be seen large numbers of Cannas, *Alternantheras*, *Coleus*, *Begonias*, *Ageratums*, Harrison's Musk, *Lobelias*, and numerous other things, giving some idea of the amount of anxiety and labour that is entailed in producing the masses of floral beauty that make London parks gay in the summer. A large conservatory recently erected, to which there are yet additional wings to be added, is kept continually gay with flowers, which doubtless are a source of pleasure to many a plant-loving worker, whose only facilities for growing his favourites may be the window of his dwelling. A promising collection of Chrysanthemums are now advancing in growth for the purpose of making gay the large exhibition house when summer beauty has passed away. A large number of subtropical plants are also in evidence, amongst which are splendid specimen plants of *Agave americana*.

In conclusion, a special word of praise is due to Mr. J. W. Moorman, the able Superintendent of this park, not only for the brilliant display of spring bedding, but for the able and enthusiastic manner with which he deals with the many complex and arduous duties connected with his charge.

Very different in outline, but no less pleasing in effect, is Greenwich Park, which perhaps for rural and undulating scenery has no superior, if any equal, in the environs of London. The long grass slopes and pleasant valleys are everywhere studded with giant Elms, Horse Chestnuts, and other forest trees, many of them old and weather beaten—truly figures in history. The extensive view to be obtained from the high eminences add much to the beauty of the landscape. There may be seen the Gordon Boys' Home, which is so closely connected with the name of the gallant hero of Khartoum, and the far-famed Greenwich Hospital, while beyond are the waters of Father Thames studded with masts, and further still rises the hazy smoke from the great metropolis. The spring bedding here is quite in character with the truly natural form of the surroundings, for in strolling along one comes suddenly on a bright bed of mixed Tulips, and a little further on

is another one gay with Polyanthus, or in another direction may be found other beds of distinct colours, amongst which White Pottebakker was particularly striking. Had time allowed much more might have been seen in this pleasant resort, but as the shades of evening were commencing to fall, steps were directed homeward, with a thorough satisfaction that the time had been well spent.—WANDERER.

STRAWBERRY LAXTON'S LEADER.

MESSRS. LAXTON BROTHERS have sent us samples of a new Strawberry of very great promise. It is the result of a cross between Noble and Latest of All, and named Leader. The specimens certainly "lead" Noble a long way in quality, firmness, and flavour, while not being behind it in size. The plants were taken from the ground and potted in September last, and the fruits ripened just after Royal Sovereign under the same cultural conditions. We figure a typical example, but not the largest, which was $7\frac{1}{2}$ inches in circumference, and append a description:—

Fruit large, bluntly conical, but occasionally flattened and wedge-shaped, and more or less deeply ribbed; colour glossy crimson, studded with numerous yellow seeds or achenes; flesh scarlet, with a whitish band, of good texture; flavour piquant, sweet, with a pleasant aroma. The fruits travelled well.

Since writing the foregoing we have received three fruiting plants. These are sturdy in character with very downy leafstalks and strong flower stems bearing large flowers like those of Latest of All on one plant, the other two plants carrying handsome fruits, the best weighing $1\frac{1}{2}$ oz., and the others very little smaller, with the true Strawberry flavour as fully developed as we usually find in fruits ripened naturally. The variety cannot be shown in a forced state before the Fruit Committee of the R.H.S. this year, as the crop will be over before the next meeting, but it is in the collection at Chiswick, and there we shall look out for "Leader" in the open ground.

PRUNINGS.

WITHOUT underrating the weight of diplomas sealed and signed by the Royal Horticultural Society, I do not think their face value is of such high importance as our young aspirants to fame are inclined to imbue them with. I would rather look on these exams and the preparation they entail as a stirring of the mental faculties in the spring-time of life, whereby the seeds of experience are afforded a well tilled medium for germination, to bear sound fruit in the summer of life. The gardener in embryo is afforded many opportunities which his forbears missed by being born too early. May many a youngster win the maximum "marks," and wear his newborn honours modestly.

Mr. Wilson's admirable paper on "Employers and Gardeners" (concluded on page 328, April 18th), expresses what many feel and think and know to be true, but which, by force of circumstances, must have remained hidden under the bushel of prudence. Yet, perhaps the man in active life with his heart in his work thinks last and least for himself. He is a man apt to rise at untimely hours, nor does he seek his couch until sundry nocturnal rambles rid his charge of some pest which chooseth darkness for its evil deeds. To rush from a heated house coatless or hatless as the first warning note of the coming hailstorm strikes the glass is thought nothing of at the time, but it may be sowing the seeds of rheumatism. Still is not the earnest, devoted, prudent gardener appreciated? I dare venture a prediction that any pruning which would sever Mr. Wilson from his employer would be painful to both. Let us hope for more and closer unity between (I like the old formula) "master and man," and it is worth striving for by all.

Truffles (page 357) ". . . delicious species . . . fungus family . . . probably heads the list." Well, that's a matter of opinion. I do not think we shall ever hear of Truffles for the million. Anyway, if our American friends want them, and cannot get the dogs, pigs for hunting purposes are, I believe, used in the South of France. I have found Truffles under Cedars of Lebanon, and thus discovered them through the squirrels, who were continually scratching away the few inches of hard, dry soil to reach them. On one occasion in planting some Laurels under the Cedars in another part we came across some fairly good specimens, which were duly presented to, and appreciated by the cook.

Green flies and all the flyers we have fumed in the old-fashioned way, and choked ourselves in the fuming. Mr. Bardney (page 334, April 18th) likes the new XL All vaporiser. He has liked many things in his time, and it is hoped will live long to like more. I have found the fumigating sheets invaluable, but not inexpensive. A few thousands of cubic feet look big on paper, but do not usually require a great deal of glass to cover them. The principle of the vaporiser appears to mark a change in the system, as doubtless the atmosphere is by this means charged with minute particles of nicotine which pass not away like the smoke.

There is yet one thing wanting—viz., we want these articles a little cheaper, for encouraging a freer use of them. Then we shall be happy. What severe trials young gardeners of a passing generation were put to when boxed up with the burning paper or rag to keep it from flaring. Some could stand the ordeal, and some were sickened for days. Well do I recollect one summer's night, when all hands were piped to the "big conservatory," each with a wire basket, and two with an infernal machine—an iron truck, in which heated bars fired the paper—how a comrade, feeling those qualms equivalent to *mal de mer*, escaped in the gathering gloom to a broken pane in the sash on the ground level. Alas for the sequel! being on his knees with his head protruding from the friendly porthole—old "Spot"—the governor's bulldog spotted him, went for him, and there was a "flare."

Clianthus Dampieri? (page 335). I quite endorse all you say about this, Mr. Burrows, as a floriferous climber, easy to grow, handsome and useful. You describe your fine plant so well that I am at it with my pruning knife. Snip! off comes Dampieri, on goes puniceus. I cannot but assume that you have mistaken C. puniceus—the Lobster-claw, for C. Dampieri, the gorgeous Glory Pea. The latter is all but of bushy habit, and seldom seen in perfection. The best example I have seen of it was planted in a compost of loam and leaf mould, and grown in a box



FIG. 69.—STRAWBERRY LAXTON'S LEADER.

standing on a coil of pipes in a temperate house, where a free circulation of air was maintained. It is easily raised from seed, but not so easily reared to perfection.

"The Old Boy," or (begging his pardon) "An Old Boy," in his first paper of "Bothiana" thinks of his bothy days. I think a good deal of individualism flows out through a pen aside of the subject it is treating upon, and when an old boy writes for young ones he recalls the past and dips in sympathetic ink. May I suggest, "Old Boy," that when stage No. 1 of a gardener's life is completed you will then supplement "Bothiana" with stage No. 2, and give us Gardeneriana? This, I take it, is of no less importance, for there are rocks ahead in the first (Head) situation, which, if they do not wreck, are as well avoided.

Royal Horticultural Society, April 23rd. Medals, certificates, and cultural commendations galore. Who was present before I prune? So-and-so. Ah! be canny then. Fruit Committee, "Countess Melon," I like that name; Strawberries, Kidney Beans, Victor Potatoes, Seakale—open air; "valuable," exactly so; "only provided in comparatively few gardens." Humph! could trundle you on a few barrowloads, gentlemen, and so could all my neighbours for miles around. Some of them grow it no other way. More shame for them. But we all cover it with fine sifted coal ashes—burnt ones from the stokehole are best. What heads! how good! but we can have too much of a good thing, and with Spinach, French Beans, Villam's Cabbage, Asparagus—now cutting, and the survivors of the fittest amongst the Broccoli, why Seakale is now a glut in the garden [and kept there!—EDS.].

"Round about Sevenoaks" went the "Jaded Londoner" (page 366, April 25th), jostled pell-mell, going and returning. I hope "the city dwellers when they journeyed homewards laden with Primroses and other wild flowers" left the roots behind them. Well, your bank (holiday) note, in spite of the weary, weary tone pervading it, shows that you enjoyed it. How circumstances alter cases! I say, Oh, for a sniff of London town, with its Embankment gardens, people's parks, Kew, Fleet Street, and the quintessence of activity! Better wear out than rust, "Wanderer."

Could "The Missus" (page 372, April 25th) be induced to procure a sketch of that Potato-sorting machine she so graphically describes on

page 372? and would our mental food-providers reproduce it on these pages? Or is it doomed to remain in that "remote village on the Trent." It should be useful. Wants a good deal of manning (2) though—and womaning (4), besides the boy = 7, with the "Missus" looking on (total, 8), and being only a machine "cannot discriminate" and sort out the faulty tubers.

I have a friend in London who tells me that he knows a machine which *does* discriminate, for when it is corking bottles of wine in Mr. H. R. Williams' gigantic stores in Lime Street, and gets hold of a bad cork, it throws it aside in disgust, not one in a thousand passing in a faulty state. London again! But I must cut it short, or I shall be making the Editors "corky," as wine does not, I think, make glad the hearts of many gardeners, so snap goes—SAYNOR.

ARGON.

In reply to Mr. W. Dyke, page 388, I beg to say that I gave argon on page 333 as an air-derived element on the "authority" that there is frequently a discrepancy in the results obtained in ascertaining the density of nitrogen gas procured from the atmosphere, plants and animals, which leads to the conclusion that some unrecognised element must be present to account for the discrepancies in the calculation. To this Mr. Dyke replies—"It will not do to assume that because argon and nitrogen are found so intimately connected together that they must consequently be both taken up by the plant." This is ignoring the fact (for there is nothing assumed) that the newly discovered constituent of the atmosphere "argon" by Lord Rayleigh, and almost immediately confirmed by Prof. Ramsey, was indicated by Cavendish in the last century as a disturbing element in the nitrogen gas derived by him from the atmosphere. Cavendish discovered the peculiar properties of hydrogen, and the qualities by which it is distinguished from atmospheric air. To him we owe the important discovery of the composition of water. Scheele had already observed that when oxygen is mixed with double the quantity of hydrogen, this mixture burns with an explosion without any visible residuum. Cavendish confined both gases in dry earthen vessels to prevent the escape of the product of their combustion, and found that the residuum was water, the weight of which was equal to the sum of the weight of the two gases. Priestley observed that a quantity of atmospheric air confined in a tube through which the electric spark was transmitted, lost in volume, and formed an acid which reddened the tincture of litmus. Cavendish took up this cue, confining in the tube a solution of pure potash, which absorbed the acid, and he proved it to be nitric acid. The analysis of the air which remained in the tube after the experiment showed that the weight of the oxygen and nitrogen which had disappeared was equal to the weight of the acid thus formed. He easily determined the proportion of the nitrogen to the oxygen, which was 2 : $\frac{3}{4}$. It was found, also, that when both gases, sufficiently pure, were mixed in that proportion, and exposed to the electric spark, the mixture disappeared entirely, by which his discovery was completely confirmed.

Thus Cavendish* acquired distinguished rank among those learned men who have most contributed to the progress of chemistry, and it is due to him that Lord Rayleigh and Professor Ramsey have been able to account for the discrepancies in the results obtained in ascertaining the density of nitrogen gas by the discovery of argon, the existence of which had been indicated by Cavendish in the last century. Numerous experiments were made to test the validity of Cavendish's hypothesis; in fact, all chemists acknowledge that there is some unrecognised element present in the nitrogen gas as derived from air, plant and animal analysis, and that element as regards air has been shown by Lord Rayleigh to be argon. This element is not yet proved simple, some having doubt as to whether there are not two substances in combination rather than one only. One thing only is certain, the newly discovered element (if it be one and not a compound) does not combine with any other element, which is fatal to the mixture doctrine, but there are other reducing agents in the world besides chemicals, such as the micro-organism which converts the free nitrogen of leguminous plants into assimilable, and it is a notorious fact that Clover fields in blossom produce an atmosphere largely laden with ozone, as indicated by the so-called sulphurous odour, and belongs to something developed in the atmosphere by electricity. It is a colourless gas, unknown in a pure state, but hitherto has only been obtained mixed with several times its weight of air or oxygen.

Its properties are oxidising; in fact, "ozone is nothing more or less than oxygen in a peculiar active condition"—(Johnson, "How Crops Feed," page 64). Ozone is formed by chemical action as well as by electrical disturbance, and is due to the union of oxygen with phosphorus, if indeed it is not formed by the oxidation of every oxidable substance, a portion being diffused—that is, of the oxygen in the peculiar active condition—into the atmosphere through escaping immediate oxidation. Sir J. B. Lawes, Sir J. Gilbert, and Pugh found no such evidence; but is that conclusive that plants do not evolve ozone as well as oxygen from the foliage, and especially flowers, when acted on by sunlight? There is little or none of it in crowded cities, less in slums, and the vicinity of manure heaps, as it there finds organic matters, and combining therewith its presence cannot become manifest.

Nitrogen is a colourless, inodorous, tasteless, uncondensable gas, existing free in the air, the intercellular spaces of leguminous plant cells,

and the air bladders of fishes. In combination with other elements it constitutes many minerals and a great variety of animal and vegetable substances. Lavoisier gave this substance the name of azote (Greek, *a*, privative; *zōē*, life), because it is incapable of supporting life; but Chaptal gave it the name by which this gas is now known because of its entering into the composition of nitre (nitric acid). It is readily obtained from the atmosphere by removing the oxygen, which may be done by burning phosphorus in an enclosed space of air or by passing air over heated copper. In doing this there is a discrepancy in the weight of nitrogen, and in ascertaining to what this discrepancy was due Lord Rayleigh discovered the gas suspected by Cavendish, and to which the name of argon has been given. It is what? Anything more than inert nitrogen! Surely, Mr. Dyke has authority for his negative statement, and will be able to supply the necessary information. This is essential before we proceed to explain "how it is assimilated by plants." What evidence have we that argon is but a form of nitrogen? Professor Ramsey's experiments are based on the principle that the process which liberates nitrogen also sets free argon, which is very suspicious of there being only a technical difference between nitrogen and argon, the latter corresponding to the ozone form of oxygen. The Peas and mice subjected by Professor Ramsey to experiment for the discovery of argon in nitrogenous vegetables and animal tissues are far from conclusive; indeed, it was Dumas' method for extracting nitrogen, the powdered Peas or mice being mixed with copper oxide and lead chromate in a heated tube, whereby the hydrogen, oxygen, and carbon, are removed and the nitrogen is collected. Was there no indication in the weight of this nitrogen of another element—to wit, argon—extremely inert nitrogen? Professor Ramsey is silent about this, even doubting that the process adopted was not suitable for detecting the new element.

Surely we ought to be satisfied with Lord Rayleigh's and Professor Ramsey's statements, and not as physicists raise the question, Do plants assimilate argon? First, let chemists tell us that it has been detected in nitrogenous vegetables and animal substances, as Sir J. B. Lawes and Sir John Gilbert found there was more nitrogen in leguminous plants than could be possibly derived from the soil. Then and not till then may we set to work and prove that argon is present in plants for preventing that decay or impairment of tissue which must otherwise attend over-assimilation of the free nitrogen of leguminous plants by the microbes. Thus it would not be a matter of assimilation, but of insuring the general slowness of the fixation of free nitrogen in leguminous plants in symbiosis with microbes.

The probability is that plants do not possess the power of assimilating argon any more than the free oxygen, hydrogen, and nitrogen gases, but that is no reason why they may not absorb argon as well as the other elements, including carbon, and because free nitrogen is fixed by leguminous plants in symbiosis with microbes there is no cause to assume that argon must be assimilated, even if it does enter into the composition of plants, and of which there are certain indications. It may not, however, be possible to detect it at present through the method employed being at fault, but chemists will sooner or later make all clear in respect to this interesting discovery.

The chemical constituents of the atmosphere must enter into the composition of plants. Evolution points to a primitive atmosphere of absolutely pure nitrogen, there not being any free oxygen, and with only such carbonic acid and water as were evolved from volcanoes, which extended over the greater part of the earth's surface, the first organised beings came into existence. Only plants of the Algæ class could then exist, animals being unable to subsist in such atmosphere. In course of time enough oxygen would be evolved by vegetation for the support of animal life of a low order, and as vegetation extended there would be both nutrition and air enough for the support of higher forms of animated beings. The struggle, therefore, would be between oxygen on the one hand and nitrogen on the other. Micro-organisms acted in behalf of vegetation—the more nitrogen appropriated the more oxygen liberated, and the more of that the greater the fixation of carbon. This implies more animals subsisting directly or indirectly upon vegetation, and so on up to the present time. Up to a certain geological period there would be little or no ozone, but it would appear with the spread of vegetation on the land, for there could be no ozone evolved by marine plants. This ozone is simply a peculiarly active form of oxygen, and there is evidently a counterbalancing incombustible element—an evolution from or a primitive form of nitrogen. Will Mr. Dyke kindly tell us what he knows on this subject? It will fill up the gap between now and when further investigations are concluded in respect of argon.—G. ABBEY.

EXAMINATION IN HORTICULTURE.

IN reply to "H. O. H." (page 380) I wish to say I omitted the last few words of the paragraph because I considered there was nothing of any importance in them. I quite agree with him that a certificate for the successful culture of some kind of fruit, flowers, or vegetables, is an advantage to its possessor; but to gain such is not practical to gardeners generally. Your correspondent on the same page asks, "Why give a certificate for a thing which of itself is perfectly useless?" And yet when he is speaking of theory lower down the article he says, "Nay, I commend it, for what gardener is perfect without it?" If "H. O. H." thinks that the questions set at the examination are all theory, he is mistaken, and for the benefit of those who have never seen them I have

* Messrs. Blackie's "The Popular Encyclopædia," half vol. iii., page 189.

sent those which were set at the exam on May 1st, 1895, and I will leave them to judge what chance a man with theory alone would have in answering them.—W. D., *Turnford*.

ROYAL HORTICULTURAL SOCIETY'S EXAMINATION IN HORTICULTURE.

QUESTIONS.

EIGHT questions only to be answered; four from Division A, including No. 5, which must be answered by every candidate, and four from Division B.

DIVISION A.—ELEMENTARY PRINCIPLES.

- 1 (a), What substances do plants absorb by means of their roots? Explain the process of absorption by the root.
- (b), What elements do plants obtain from the air, and by what agency do they obtain them?
- 2, Explain the effect on flowering plants of an adequate, a deficient, or of an excessive amount of heat.
- 3, How are "cuttings" made? Describe the changes that occur during the process of "striking."
- 4, What are the objects sought to be obtained in digging the soil?
- 5, Write as full and orderly a description as you can of any plant in common cultivation, through all stages of its growth, from the germination of the embryo to the formation of the seed.
- 6, What organs of the plant are represented respectively by an Onion, a Cabbage, a Potato, Beet, Turnip, and a pea-pod?
- 7, Describe the mode of growth of the common Mushroom.
- 8, What is meant by "green fly"? What is the best application to rid plants growing out of doors of this pest?

DIVISION B.—HORTICULTURAL PRACTICE.

- 9, Name six of the best species of hothouse flowering plants, and give some of the general details of culture. Name some of the insect pests that infest such plants, and state the best method to be adopted for their destruction.
 - 10, Give general details for growing Peas, and the method of culture, time of sowing, &c., to give a supply for as long a period as possible. What is the use of the nodules on the roots?
 - 11, What is an Alpine plant, as the name is generally understood in gardens? Describe the cultural requirements of such plants, and the best way to propagate them.
 - 12, What is the original parentage of Cauliflower and Broccoli? Give the method of culture, and the best varieties to obtain a succession all the year round.
 - 13, Give some details of the culture of Grape Vines under glass. Describe the diseases to which they are subject, and the insect pests which attack them, and their cure.
 - 14, What kind of fruit trees and bushes are best adapted for culture in small gardens? Briefly describe the best method of culture, and arrangement of the trees and bushes.
 - 15, In a walled garden, what kinds of fruit trees would you recommend to be planted on the four aspects, south, north, east and west? What distance apart should the trees be? Suggest the best width of the borders, and height of the walls.
 - 16 (a), What do you consider the best class of soil for fruit trees, and how ought it to be prepared for them?
 - (b), Is there any method of culture likely to prevent canker in Apple trees, or gumming in Apricots, Cherries, and Plums?
- [Perhaps some of our readers might like to indulge in a little home educational exercise in answering those questions.]

TOTLEY HALL.

At Totley Hall, the residence of W. A. Milner, Esq., situated four miles from Sheffield, may at the present time be seen one of the best collections of Daffodils to be found in the north of England, numbering about 300 varieties. It was my privilege on May Day to view this magnificent show, and as Mr. Milner and his talented gardener (Mr. T. Birkenshaw) are enthusiasts in the culture of Daffodils and Orchids, a visit at this time of the year is instructive and interesting.

Two long winding borders, each 12 or 14 feet in width, are planted with Daffodils—hundreds of thousands of bulbs—of all the best and most rare varieties, each being kept together, but the whole forming a mass of colour not easily to be forgotten. The blooms are larger and the plants better grown than any I have previously seen. The foliage is of great strength and substance, showing their cultivation is well understood. The bulbs are lifted every second year, the land well trenched, a good layer of cow manure being placed at the bottom of the trench, the bulbs being at once placed back into the soil. The massive blooms show that this treatment suits them.

The various sections are well represented. Grand blooms are to be seen of Emperor, Empress, Horsefieldi, Bicolor and others. Several blooms were at their best of that magnificent new variety, Weardale Perfection, which is far ahead of all other varieties, as may be seen by comparing with a large bloom of Empress. Glory of Leyden and Madame de Graaff were showing good blooms, but were not as massive as the former. Other good varieties noted were Sir Watkin, Barri conspicuus, Shirley Hibberd, Duchess of Westminster, Barri Autocrat, Madame Magdalene de Graaff, Barri Sensation, Princess Mary, Backhousei, P. R. Barr, Maximus, and others too numerous to mention. In

the grounds there are borders containing a choice collection of herbaceous plants, also a rockery planted with alpine.

In the houses may be seen some remarkably well-grown Dendrobiums. One of *D. thyrsiflorum* has twenty-five fully developed racemes of bloom on it. This plant has had the same number of racemes for several years past, several being taken off to throw more substance into those that remain. This plant alone is worth going a long distance to see, as in addition to its free flowering qualities, it is one of the best varieties. *D. Paxtoni* is also well grown, and one plant was carrying thirty-eight fine racemes of bloom. A splendid collection of *D. Wardianum* is grown, and the plants now making strong growths, this being also the case with *D. nobile*. On inquiring of Mr. Birkenshaw what treatment he gave them, I found they were potted in equal parts peat and sphagnum, shutting the house up in which they are grown with plenty of sun heat and moisture, giving air at night to reduce the temperature and strengthen the young growths.

Cattleya citrina is also well grown on blocks, the bulbs and blooms appearing to gain in strength each year. *Disa grandiflora* is remarkably fine; they are in the best of health, and as there are upwards of ninety plants they will make a good show when in bloom. Other Orchids were doing well, as were the ordinary stove and greenhouse plants. A fine plant, growing on the back wall of one of the houses, of *Clianthus puniceus*, had flowered well, thousands of blooms being expanded at one time. Vines were carrying good crops of fruit, the whole reflecting great credit on the gardener. All interested in gardening are welcomed by Mr. Milner to enjoy the floral treat, a kindness appreciated by at least—ONE OF THE CRAFT.

MARKETING APPLES.

A HINT FROM AMERICA.

SOME essential points to be considered in the marketing of fruit were given by Mr. George A. Cochrane in a paper read a few weeks ago before a meeting of the Massachusetts fruit growers in Worcester. The salient points of this were printed in the "Garden and Forest," and we reproduce them for the benefit of growers, to whom the hints will doubtless be of interest and use.

"For several reasons the barrel is too large a package for Apples, which should be marketed in boxes no larger than those used for Oranges and Lemons. Last autumn I advised the trial of such a package, and suggested that each Apple be wrapped in paper as Oranges and Lemons are. Three thousand cases were sent to me for shipment to Europe. Out of fifty growers of Apples only three understood what a close selection of fruit meant, and the Apples sent by these three growers sold in London at 2 dols. 40 cents. a case, when fruit in a barrel, which held three times as much as one of the cases, brought only 4 dols. Some growers sent windfalls, in the hope that wrapping them in paper would insure their safe arrival in England. Some sent Snow Apples and Russets mixed in the same case. Of course, when barrels are used, new ones and not second-hand flour barrels should be procured, for no matter what care is taken to dust and wash them sufficient flour will remain in the seams or staves of old barrels to rattle out in transportation and dust the fruit.

"In packing a barrel select a fair sample of the contents for the bottom layer. Place the Apples, stems down, in the form of a ring, beginning at the outside, and having secured this layer firmly, place the second layer in so as to fit closely in the interstices, then fill the barrel quickly and gently, and when one-third full rock it slightly to settle the Apples. Repeat this rocking when the barrel is about three-fourths full, and when it is filled place a padded board on the top and rock it while the board is held down firmly. Then place in sufficient fruits to form a cone at least 2 inches above the chime. Now force the head down with a barrel-screw presser, nail the chime hoops, both top and bottom, securely, and have the head-lining sufficiently large to lap the presser that forms the head.

"Never pack red Apples until they are of a good colour. It is an expensive blunder to wait until the last moment and then strip the tree of all its fruit. It is also a mistake to pick the Apples faster than they can be packed. It is a good plan to go over the trees a week or a fortnight before the general picking and remove the well-developed and well-coloured fruit and market it at once. Apart from the advantage of early marketing, such pickings help the fruit which remains, increases its size, and improves its colour. Apples should be headed up at once, and if they are to be held they should be hurried into cold storage as near a temperature of 32° as possible. They should never be allowed to lie on the ground, and under no circumstances must they be exposed to sun or rain after being picked or packed. Autumn varieties decay quickly, because they are exposed to a higher temperature after leaving the tree than the winter varieties are, and more fruit is lost after being picked in the heat than from the frost.

"Growers who keep Apples in bins to market during the winter should select and sort at the time of picking. Only perfect and healthy fruit must go into such bins. Cellars should be ventilated so that advantage of any change in the temperature can be taken and the fruit kept as nearly as possible at the required coolness. When the average temperature has been above 45° from the time of sorting to December 15th Apples should be marketed as soon after the turn of the year as possible. When they are kept in the bin after this time they will not stand rough usage and will not answer to ship to Europe in barrels. One reason why autumn fruit does not pay arises from the fact that large quantities of delicate fruit is placed in one compartment,

which, because it is air-tight, becomes overheated. Such delicate fruit ought never to be placed in barrels, except for near-by markets, and then only under the most favourable conditions of weather. Were American Apples marketed in as sound condition as Oranges are, if they were graded as Oranges are as to quality and size, if they were wrapped and packed as Oranges are, they would be worth three times as much as they now command in Liverpool."



FRUIT FORCING.

Vines.—*Early Houses.*—Where the Grapes are ripe moderate moisture must be maintained for the benefit of the foliage, and it will not injure the fruit, provided air is admitted so as to prevent the deposition of moisture on the berries. A little ventilation constantly, and a gentle warmth in the hot-water pipes, which will be necessary to prevent the temperature falling below 60° at night, and by increasing it early on fine mornings the Grapes will heat equally with the surrounding air, and spotting thus be prevented. If Black Hamburgs, or even Madresfield Court, a slight shading, such as that from a double thickness of herring net drawn over the roof, will prevent the Grapes losing colour to a great extent under powerful sun, especially where the panes of glass are large, and do much to preserve the foliage in good condition. This must be kept as free as possible from red spider, as the retention of the principal leaves, with a moderate amount of lateral growth, is essential for the development of the buds for providing next year's crop and the prevention of their starting prematurely, as would be the case if the foliage was shed early. Where fermenting material has been used on outside borders a portion of it should be removed or it will have become cold and heavy, leaving sufficient to avoid giving a sudden check.

Vines Started at the New Year.—The Grapes are commencing to colour. Inside borders must have due, but not excessive, supplies of water, and a light mulching of short, sweet material, but no great means should as yet be employed to produce a dry condition of the atmosphere, as the Grapes will swell considerably in ripening. Tepid liquid manure will greatly benefit weakly or heavily cropped Vines, or a top-dressing of the advertised fertilisers applied after the soil has been duly moistened, and then washed in moderately, will tell in the current and succeeding year's crop. Sprinkle the house in the early part of the day and at closing time, a little ventilation being provided constantly to induce a change of air and prevent the deposition of moisture on the berries. Maintain the temperature at 70° to 75° by day from artificial means, and 80° to 85° through the day from sun heat, advancing in the early afternoon to 90° or 95°, falling with the declining sun to a night temperature of 60° to 65°, 5° more by day and night being necessary for Muscats. As the fruit advances in colouring the moisture should be gradually reduced and the ventilation increased, but there must not be any diminution of the temperature until the Grapes are fully ripe. Grapes that are liable to crack, such as Madresfield Court, or to "spot," as Duke of Buccleuch, may, when ripening commences, have the needful supplies of water or liquid manure, and then have the inside border mulched with a couple of inches thickness of dry material, which, with early ventilation in the morning, insure these remarkably fine Grapes arriving at perfection.

Succession Houses.—Thinning the berries, stopping, and tying, must be attended to as occasion requires. Especially let all superfluous bunches be removed as soon as the number to be left on a Vine is decided. This is matter requiring some judgment, having regard to the vigour of the Vine and the variety; a pound of Grapes of the large-berried sorts, such as Black Hamburg, per foot run of rod being a good crop, and usually as heavy as forced Vines will bring to perfection annually. Examine the borders of succession houses at least once a week, and when dry supply water freely. Inside borders, especially those of open material, and with thorough drainage, will take almost any quantity after the Vines are in full foliage; and with a full crop of Grapes, liquid manure, or its equivalent an approved fertiliser, should be applied at every alternate watering. Outside borders will not, as yet, require water, but where they lie high and dry, the soil being free, a light mulch of short material will prove beneficial, but avoid heavy dressings of soapy manure.

Late Houses.—Late Vines must be tied and stopped as soon as they have made the requisite growth, pinching always being done when the leaf at the stopping joint is the size of a halfpenny. Allow sufficient lateral growth for covering the trellis evenly with foliage without crowding. Admit air freely on all favourable occasions, as there is the greatest benefit in well-developed leaves, stout and firm in texture, as on these and their continuance in health, with due supplies of nourishment at the roots, depends entirely the swelling and maturity of the crop, particularly the colouring or finishing process. Every advantage, therefore, should be taken of sun heat to increase the ventilation early in the day, but close early, excessive fire heat being injurious, and a vitiated atmosphere baneful.

Newly Planted Vines.—When the roots have taken to the fresh soil and become active the Vines will show it by advancing in growth, and with due attention in watering at the roots and maintaining a genial atmosphere they will make rapid growth. Allowing all the wood to remain that can be exposed to light secures a vigorous root formation and a sturdy cane, through which the sap flows freely. This practice, however, is not so much in vogue at the present time as formerly, the number of shoots corresponding to the rods required per Vine being left on each, and the laterals on these are pinched at the first leaf and so on throughout the season, which results in thoroughly solidified canes that are allowed to bear an amount of fruit equal to about 1 lb. per rod in the following year. Whether this is a better system than the old one remains to be ascertained, not from a few years' experience, but from that extending over a prolonged series. Supernumeraries intended for heavy cropping next year should be confined to one rod or cane, and the laterals pinched at the first joint, stopping the cane when it has made 8 or 9 feet of growth up the trellis. The buds will then attain to perfect formation and matter be stored in the cane in their immediate vicinity.

Vines in Greenhouses and Unheated Houses.—The Vines will now require disbudding, stopping, and tying. One shoot is sufficient to each spur, unless they are wide apart, when two may be left, but there must be scrupulous attention to prevent overcrowding, every leaf having space for development. Reserve the growths that show the best bunches, rubbing the others off. Stop two joints beyond the bunches, but rather than crowd pinch one joint beyond the fruit or even level with it. Tie down the shoots carefully and gradually. Stop the laterals at the first and every subsequent joint of growth. Old Vines do not sometimes bear freely, the spurs being weak. It is best to lay in shoots from the base of the rods and train them at intervals of about 3 feet, or one to each rod, which will increase root action, the Vines attaining greater vigour, and when the canes are formed the old rods may be cut away. This will cause diminished crops for a short time, but the old Vines with fresh canes will bear excellently, or much better than from old spurs. Apply a dressing of chemical manure, 3 or 4 ozs. per square yard, and point it in very lightly. Inside borders may be treated similarly or be supplied with liquid manure, giving water as required, when dry a thorough soaking, and a light thin mulching of short sweet manure will, by keeping the surface moist, encourage active roots near the top of the border.

Melons.—*Early Plants.*—When the fruit begins ripening lessen the supply of water at the roots, but not so as to distress the plants by causing the foliage to flag, for if the growths be kept clean and the roots in good condition a second crop of fruit may be had. Atmospheric moisture should be withheld and a circulation of dry air insured, increasing the temperature to 70° or 75° artificially and 80° to 90° with sun heat. Cut the fruits before they are very ripe, keeping them in a fruit room, or place not directly exposed to the sun, yet sufficiently warm to insure ripening, for two or three days, so as to mature evenly, when only they are in proper condition to be sent to the table. Cracked fruits are produced by a close and moist atmosphere, especially at night. If any fruits show a tendency to crack cut the shoots about half way through with a knife a few inches below the fruit, and diminish the supply of water, leaving a little ventilation constantly to prevent moisture condensing on the fruit.

Successional Plants.—In order to effect a good set of fruit the atmosphere should be kept rather drier and warmer when the plants are coming into blossom, attending early to the ventilation, and leaving a little constantly if there is danger of moisture condensing on the flowers. Fertilise the blossoms when fully expanded, stopping the shoots one or two joints beyond the fruit at the time the fertilisation is done. To secure a full crop take care to have a number of fruits on individual plants in the same stage of growth. Earth-up the plants with some rather strong and rich loam after the fruits commence swelling, ramming it down firmly, placing a little quicklime around the collar to prevent canker. Plants swelling their fruits should be freely syringed in hot weather about 3 P.M., damping the floor in the morning and evening, or oftener if necessary. Shade only to prevent flagging. Ventilate early in favourable weather, commencing from 75° to 80°, increasing or decreasing it through the day as may be necessary, maintaining a day temperature of 80° to 85°, or 90° with sun heat, closing between 80° and 85°. If an advance is made after closing to 90° or 95°, or even 100°, it will materially assist the fruit in swelling, and lessen the necessity for fire heat at night, but it must be accompanied by plenty of atmospheric moisture. If aphides or thrips appear fumigate moderately, with tobacco or vapourise with nicotine on two or three consecutive evenings, taking care to have the foliage dry, and for red spider and white fly dress the hot-water pipes with flowers of sulphur.

Pits and Frames.—Train the growths evenly, avoiding crowding, adding fresh soil to the hillocks as the roots protrude. The shoots should be trained sufficiently far apart as to allow the light to reach the bed, then the growths will be sturdy and fruitful. Fertilise the flowers about midday, stopping the laterals one joint beyond the fruit. Still maintain a good bottom heat by linings, and employ thick night coverings, as the nights are yet cold. Commence ventilating early, between 70° and 75°, and keep through the day at 80° to 90° from sun heat, closing early in the afternoon, so as to secure a temperature of 90° to 95°. Sow seeds for raising plants to put out in pits or frames as they become cleared of bedding plants and early Potatoes, potting the plants as required.

THE FLOWER GARDEN.

Auriculas.—The Alpine varieties at the present time are very beautiful. New seeds of the commoner forms germinate freely enough, but those of choicer strains are not so reliable, the seedlings showing very irregularly. If, therefore, only a few plants come up in the pans lift these out with the point of a label, filling up the holes with a little fine soil, as there is every likelihood of others coming up. Seeds may yet be sown in pans of fine loam, leaf soil, and sand, a cold frame proving the best place to stand these. Seedlings obtained in this way may not flower next spring, but they will develop into stocky plants for the following season. After flowering, old plants may be freely divided and placed in cooler quarters till the autumn, when they can be again returned to the beds.

Polyanthuses and Primroses.—In order to be certain of having seedlings strong enough to flower freely next spring they should have been raised either last summer or in March this year. The summer-raised plants are naturally the strongest. Both these and any pricked out in boxes should before dry weather sets in be planted out fully 4 inches asunder each way. Seeds may be sown from the best varieties and sown in a small bed in the open, and propagating by division can also take place during this month.

Daisies.—Directly flowering is over these ought to be lifted, and freely divided, every little piece with a few roots attached will grow, providing all are firmly replanted in a cool border and given water occasionally in dry weather.

Wallflowers.—If only a few of these are wanted sow the seeds now in a box, and later on prick out the plants 6 inches apart each way. Large numbers may be raised by sowing in the open ground. The soil should be well prepared and the seeds sown in drills 6 inches apart. Prick out the seedlings in nursery beds, as then they transplant more readily in the autumn. The large double German Wallflowers may also be sown now, and if stopped once will make bushy plants. Both single and double Wallflowers may be propagated by means of cuttings. Short but not "wiry" side shoots should be slipped, not cut, off the old wood, and the heels be lightly trimmed prior to inserting firmly in the soil.

Violets.—Much the finest flowers of these are obtained from young plants. The ground for a fresh bed should be lightly manured and in a good condition at the present time. It should be trampled firm as for Strawberries. Not till the young leaves are fully grown should replanting take place. When lifting and dividing give the preference to the younger divisions and newly rooted runners. One foot apart each way is not too much space to allow. In dry positions water will be required occasionally, and a mulching of short manure would benefit both new and old beds.

Campanulas.—*C. medium calycanthema* can be had pure white, and in pink and blue shades. Sow in pans or boxes and place in a cold frame, and prick the seedlings into boxes first, and when large enough plant a foot apart each way in beds or borders. They transplant readily in either the autumn or spring.

Humea elegans.—Fill a pan with fine sandy soil, moisten, and then sow nearly on the surface, placing the pan on a greenhouse shelf, covering with a square of glass and shading. The seedlings should be first pricked in pans of fine light soil, and from these shifted singly into 4-inch pots in which they are to be wintered. Those who have wintered a stock of plants in 4-inch pots ought long ere this to have shifted them into 7-inch pots, keeping them in a greenhouse. Any to be flowered in pots and plunged in the open, ought now to be given a shift into 10-inch pots, using a moderately rich, loamy soil, and potting firmly.

THE KITCHEN GARDEN.

Potatoes.—Potato planting will have been completed later than usual, but if the sets were previously sprouted other cultural details may yet have to follow closely. Directly the rows are sufficiently well defined loosen the soil by means of heavy hoes and then draw up a ridge. This should be done as early in the day as possible. One day's neglect of this important work may mean blackened shoots and a light crop. Small plots of early Potatoes should be temporarily protected.

Runner Beans.—Seed sown early has not germinated very satisfactorily. Another sowing should be made if possible, either singly in 4-inch pots or thinly in boxes, placing in gentle heat to hasten germination. The plants ought not to be kept in heat after they are up, cold frames or rough protection of some kind being less likely to weaken them unduly. Temporary protection should be afforded when the plants are put out. Sowing in boxes is also the best plan where poultry and such like are apt to interfere. Runner Beans transplanting readily enough. The soil ought to be well manured, and if near a good water or liquid manure supply so much the better. If tall stakes can be afforded single rows should be 6 feet apart, but one long old-fashioned double row (the seed being sown in drills 1 foot apart) is sometimes enough for a family. Stakes can be dispensed with altogether by sowing thinly in drills 3 feet apart, thin to 1 foot apart and keep all running growth closely pinched back. It is not yet too late to plant two rows of early Potatoes between rows of Beans 6 feet apart, or a single row between those only 3 feet apart.

Vegetable Marrows.—Plants that have been kept in small pots till they have become drawn, hard-stemmed, and yellow in colour, would yet be surpassed by plants raised from seeds sown now. Great heaps of manure are neither necessary nor desirable for these crops. If sheltered corners in a frame ground are devoted to Vegetable Marrows then mix garden soil, road trimmings, and such like freely with the heap of manure and other decaying material, making all level and solid. Give

the seeds or plants a start in small mounds of good loamy compost. An early start would be made by planting soon and protecting with frames or hand-lights, and plants obtained by sowing now where they are to grow should also be roughly protected. Vegetable Marrows may either follow early Potatoes or be sown among them, the Potatoes coming away before the Vegetable Marrows require much space. Dispose the latter from 4 feet to 6 feet apart each way, and profitable crops will be had in the midland and southern counties of England at any rate without much further trouble. The Long White and Long Green are among the most reliable varieties. Always sow more seeds than plants are desired, as surplus plants can and should be removed easily enough.

Ridge Cucumbers.—These fail during sunless wet seasons, but in favourable summers will succeed in the warmer parts of the country in little besides common garden soil. They are not so hardy as Vegetable Marrows, and should not be sown so soon. The second week in June is the best time to plant unless protection can be afforded, and seeds may be sown where the plants are to grow a week or ten days earlier. Prepare a ridge or mound as for Vegetable Marrows, and both kinds ought to be carefully screened from strong winds.

Gourds.—Where there is space between fruit trees on sunny garden walls one or more Gourds could be fruited with good effect, and they might also cover temporary or permanent archways, and such like. Give each plant a spit or more of good manure for the roots to take possession of later, but avoid overdoing it, or there will be too much haulm. As far as raising or planting out is concerned, treat similarly to Vegetable Marrows. Long stout stakes are needed for the plants, both against the walls and in the open.

THE BEE-KEEPER.

APIARIAN NOTES.

SEASONABLE NOTES.

WITH the advent of May bee-keepers should be on the alert. All stocks must be examined, and a note made of each for future reference. When each stock is numbered, and the business is conducted in a methodical manner, it is not nearly as formidable an operation as at first sight appears.

A small book that may be carried in one's pocket I have found most useful for the purpose. In this is entered the number that is marked on each hive and the age of the queen should be booked against the number corresponding with the hive. This is most important, as the strength of the colony will depend to a great extent on being headed by an active fertile queen. A note should be made as to the condition of each stock. Those that require feeding should be promptly attended to, although flowers are appearing in all directions. Bees may die of starvation during a spell of wet, sunless days, such as have been experienced very recently. A case in point came under my notice quite recently. The bees in one stock, a very strong one, were one evening found on the alighting board in great numbers; many of them were dead, others were quite feeble, and unable to crawl into their hive. On lifting the quilt the remaining bees were found between the combs in a state of stupor, and to all appearance past recovery. The cause was at once apparent, not a particle of food remained in the hive. Means were at once taken to prevent a collapse. A couple of hot bricks were placed on top of the quilt, a bottle feeder filled with warm syrup being placed on the top of frames, and the whole covered with a warm covering.

On examination of the hive next morning the bees had quite recovered, and were as lively and active as those in the other hives, the whole of the syrup having been taken by the bees. This stock has since been fed daily with a little thin syrup given warm in the evening, and is now doing well. Now is the time to make a comparison between old and young queens, but it does not always happen that queens reared a year ago are more fertile than those that are a year older. Although I am an advocate for young queens I have at the present time colonies headed by queens that are two years old, and are as strong as the best of my stocks headed by young queens. Where a number of stocks are kept there are always individual stocks that do much better than others.

At the present time I have two frame hives of the same size and manufacture, each holding fourteen standard frames, standing side by side. They were obtained a year and a half ago from a lady bee-keeper who was leaving the neighbourhood. No. 1 swarmed in the early part of last June. A young queen was reared, which in due course filled the hive with brood; they did not store any surplus, but filled their frames with honey, which was left in their brood combs for them to winter on. No. 2 did not swarm, but worked well, and filled a crate of well finished sections. The queen was very prolific, so I did not requeen this stock. The queen must be at least two years old. According to

theory, the former at the present time should be the stronger of the two, whereas quite the reverse is the case, as the latter is one of the strongest stocks in my apiary, and the former one of the weakest. Why this should be I do not know, but the fact remains that it is not necessary or advisable to requeen a stock that is doing well.

There are exceptions to every rule, and this is one to the point, still in a general way young queens are to be preferred to aged ones. I have often had queens do much better the second year, but I do not advise them to be kept longer. This, however, should not be left to chance, but a system should be carried out whereby half the stocks in an apiary should be requeened each year, and it ought to be done as early in the season as possible.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

W. & J. Birkenhead, Sale, Manchester.—*Catalogue of Ferns and Selaginellas.*

G. Bunyard & Co., Maidstone.—*Herbaceous and Other Plants.*

E. P. Dixon & Sons, Hull.—*New Plants.*

W. Lovel & Son, Driffield, Yorks.—*Strawberry List.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Salt for Asparagus and Seakale (*Saline*).—It is not too late to put salt on Asparagus beds, but it is best to give it earlier, both for the benefit of the "grass" and as a deterrent of slugs. A dressing of 2 or 3 ozs. per square yard should be applied just before growth commences in spring, but a little will do no harm at other times during the summer; in fact, will do good in dry soils. It is best scattered on with the hand, and a showery day selected, as it will then soon disappear. Salt is also beneficial to Seakale, applying it similarly as for Asparagus, and preferably before the plants commence growing, or, if afterwards, keeping it from the leaves, as all it falls on will be more or less damaged.

Potato Curl (*H. P.*).—Hallier advocated the view that the cause of this puzzling disease is *Pleospora polytricha*, but Reinke and Berthold opposed it; while Schenck, in a series of observations and the cultivation of the diseased plants, obtained from them fungi which were much like one form of conidia attributed to *Pleospora herbarum*, and which he called *Sporidesmium exitiosum* var. *Solani*. Following this up, and from Nature—the only real authority—we found that sets containing mycelium of curl fungus produced haulm on which were borne from hyphæ within the leaves the outgrowths of *Macrosporium commune* var. *Solani*, identical with Schenck's *Sporidesmium*, and later there was developed the perfect form or resting stage, known as *Pleospora herbarum*. This is frequently confounded with *Cladosporium herbarum*, simply because it is found in association with *P. herbarum*, but there is no connection whatever between the two.

Strawberries for Forcing (*Daniel*).—La Grosse Sucrée, Royal Sovereign, Auguste Nicaise and Sir Joseph Paxton. Stevens' Wonder, and Laxton's Leader are very promising first and second early varieties respectively, and well worth obtaining for stock. We think Stevens' Wonder will be distributed by Messrs. Outbush & Son, and will no doubt be duly advertised. The runners should be layered either, as soon as they are ready, in small pots or in the fruiting pots, selecting those from fruiting plants only, and the earliest and strongest runners, leaving them attached to the parent plants until well rooted. For the final potting a rather strong loam is best, but the plants will do well in light fibrous loam, adding a peck of wood ashes and a 9-inch potful of some approved fertiliser to every harrowload of loam and mixing thoroughly. Your questions on bulbs are not clear. If you require a succession of both kinds from Christmas till May it cannot be effected in the most satisfactory manner by any three varieties of each kind, especially of Tulips. Please write again, there is plenty of time for ordering bulbs.

Destroying Woodlice (*H. A.*).—It has been repeatedly stated that woodlice have been caught in thousands by placing some partially decayed and dirty old boards face to face, and covering these with litter where the pests abound. Smooth new boards are of no use, but the older they are the better, and there should be space for the woodlice to enter between them. They should be examined every morning, taken up, held like a trough, and the contents emptied into a tank or vessel of water. It is a certain mode of riddance if properly carried out.

Hedge Unsatisfactory (*M. G.*).—It is extremely difficult, and sometimes impossible to induce a thin hedge to thicken at the bottom without reducing its height. Improvement may sometimes be effected by cutting down some of the growths which form the hedge without materially impairing it as a screen; and some growths may occasionally be spared for "laying"—that is, cutting them almost through at or near the base, so that they can be bent down and affixed in position where required. Hedges often get weak through poverty of soil and drought, and they invariably suffer in that respect under trees. The only remedy in such a case is to break up the ground, so that strong and copious supplies of liquid manure can be directed to the roots, afterwards top-dressing with a thick layer of good manure. Where it is convenient to do so strong young plants may be put in for forming a better base, providing enriched soil and keeping the roots moist.

Strawberry Weevils (*Leatherhead*).—Various weevils attack Strawberries, and most destructive they are. Those you send are, we think, small or young examples of *Otiorhynchus picipes*; but other species are similarly injurious, and the habits of all are practically the same. They eat almost anything green, and often do serious damage to Vines, Roses, Ferns, Raspberries, and Strawberries. They hide in the daytime and feed at night, as a rule. Many have been caught at night under glass by shaking infested Vines or plants over white sheets, in order that the pests may be visible and secured. In Raspberry plantations thousands have been literally "secured" by shaking the plants at night over wooden troughs smeared with tar. Raspberry growers say petroleum is of no use against the weevils, as "they like it." Slates or tiles laid between the rows of Strawberries have proved tempting lurking places for weevils, and many have been caught by their aid. Gas liquor diluted with five or six volumes of water and carbolic acid have also proved useful applications. Mr. Abhey mentions preparations (No. 3) at the foot of page 378 last week, which might be tried; but weevils are proverbially difficult to deal with, and nowhere less so than in beds of Strawberries. You should make a fresh plantation distant from the old, and when this is destroyed dress the site with gas lime, half a hushel to the rod, to remain on the surface for two or three months before digging and cropping.

Tomato Stem and Root Diseased (*J. L.*).—The stem and root are badly infested with eelworm, and swarm with cysts or developing eggs of the parasite, which in all the stages of the micro-organism is well represented. The long bodies are the males, the short and stout ones the females. The oblong bodies are the cysts or developing young, their form being clearly seen through the enclosing membrane or sac, and the oval bodies found on the breaking up of the pear-shaped receptacles are the eggs, which simply grow into cysts, often within the parent, and burst forth. The plants in such case are too far gone for recuperation, but you may use a solution of nitrate of soda, 1 oz. to a gallon of water, and when the plants need water again supply a solution of kainit, 1 oz. of the salt to 1 gallon of water. This is a good and safe remedy, always provided that the plants are not too far gone, and it is followed by placing turves against the stems above ground, so as to induce roots from that part for the supply of nutriment to the plants. The turves should be disinfected by the saturation of them a few days prior to use with the foregoing solutions, which will give excellent results in the crop with freedom from eelworm. The species of eelworm is *Anguillula obtusa*, a common British one, and mainly differs from *A. or Heterodera radicola* in the males being shorter or more obtuse. The treatment advised is only for Cucumber and Tomato plants in fruit so as to enable them to perfect their crops.

Wireworms (*A. G.*).—The guano, 28 lbs. per chain, is an excellent dressing, and ought to give good results, both as regards the wireworm and the crop of Runner Beans, which, as you say, soon outgrow the pests when the Bean plants begin to make lateral roots. A dressing of quicklime fresh from the kiln is excellent for land infested with wireworm, especially that of old turf recently broken up. Half a ton per square chain, placing the quicklime in heaps convenient for sowing, sprinkling with water, and covering with a little soil till fallen. Whilst quite hot and floury the lime should be spread and pointed-in with a fork not more than 6 inches deep. Corrosive sublimate solution would kill the wireworm, but it must be very cautiously used, as there is danger of its getting into wells with the drainage water, or into other receptacles, where it may cause serious consequences to man and beast. Sprinkling the rows with it would be quite sufficient, and 1 oz. to 30 gallons of water a suitable strength. The price of corrosive sublimate is about 6d. per ounce retail. It should be procured finely pulverised, and must not be handled in the pure state. Hellebore powder sprinkled on beans with a dredger will not hurt the wireworms unless they eat it, which they are very unlikely to do. We advise the lime and nothing else, unless you like to use phenyle, which will kill or drive the wireworms away, and materially aid the plants in their growth. Wireworms are not at all fond of Tomato plants, but they will eat the roots, and the reason they did not attack yours was probably due to the guano mixed with the soil.

Insects in Mushroom Bed (H. R.).—The "grub" is the larva of one of the Rove or "cocktail" beetles, a smaller species than the "devil's coach horse," and though one of the Staphylinidae belongs to another genus. It is *Staphylinus erythropterus*, and is mainly carnivorous, but feeds more or less on decayed vegetable or not healthy plants. We have no experience of its injuring Mushrooms, but it may feed on those in a state of decay. The "white worm," are not eelworms, but common in decaying wet matter, and certainly attack the roots of many plants. It is called *Euchytræus Buckholzi*. The salt or nitrate of soda solution will destroy the pests, but there is danger in making the beds too wet for the Mushrooms. The "specimens" last sent in a box without any packing were shaken and dried into dust-like particles.

Vine Leaves Injured (Profit).—The Muscat Vine leaves are very stout in texture, and there is no mildew, or any discernible disease on them. Their appearance suggests an overdose of ammonia vapour, accelerated by the house being kept close during the prevalence of the late dull damp weather, and on a return to bright days not giving proper care to the ventilation. The tissues are considerably thickened, especially on the upper surface, and to some extent scorched. We do not see in what way defective root action could produce the condition of the leaves, as the supply of matter from some source has been abundant, and it is hardly likely it would be wholly derived from stored material. Defective root action, however, would prove disastrous to the foliage after a spell of dull weather, for on a return of bright days the amount of evaporation would be much increased, and the demand for sap proportionate. This would produce flagging and to some extent scorching, but we consider the mischief is caused mainly by the ammonia vapour, or some such agent acting on the epidermal cells.

A Good Pansy (T. T.).—The points to be aimed at in a Pansy may be described as follows:—1, Each bloom should be nearly perfectly circular, flat, and very smooth at the edge; every notch or unevenness being a blemish. 2, The petals should be thick, and of a rich velvety texture. 3, Whatever may be the colours, the principal or ground colour of the three lower petals should be alike; whether it be white, yellow, or straw colour, plain, fringed, or blotched, there should not in these three petals be a shade difference in the principal colour; and the white, yellow, or straw colour should be pure. 4, Whatever may be the character of the marks or darker pencillings on the ground colour, they should be bright, dense, distinct, and retain their character, without running or flushing—that is, mixing with the ground colour. 5, The two upper petals should be perfectly uniform, whether dark or light, or fringed or blotched. The two petals immediately under them should be alike, and the lower petal, as before observed, must have the same ground colour and character as the two above it, and the pencilling or marking of the eye in the three lower petals must not break through to the edges. 6, If flowers are equal in other respects, the larger, if not the coarser, is the better; but no flower should be shown that is under 1½ inch across. 7, Ragged or notched edges, crumpled petals, indentures on the petal, indistinct markings or pencillings, and flushed or run colours, are great blemishes; but if a bloom has one ground colour to the lower petal and another colour to the side ones, or if it has two shades of ground colour at all, it is not a show flower. The yellow within the eye is not considered ground colour.

Vine Growths Deformed (D. and W. B.).—Although the crumpled condition and the discolouration of the leaves betokened "browning" disease, there is nothing discoverable of that nature in the internal tissues, and beyond a slight clamminess no traces outside of slime fungus (*Plasmadiophora vitis*). On looking at the cuts where the winter pruning had been effected we found a curious consortism of fungi—one the sclerotium of the fungus called *Polyactis*, or more properly *Botrytis cinerea*, and from it the *Peziza* form in grand array, with its myriads of spores which give rise to the *Botrytis* again. Associated with these was the very common glaucous mould (*Aspergillus glaucus*), and also *Penicillium glaucum*. There was likewise growths of a *Botrytis*, but an abnormal form of any figured species, if one. These were all external and sprang from the cut, except the *Peziza*, which was from a sclerotium on the bark, and not one would account for the condition of the Vine growth. On cutting through the spur transversely the wood was found discoloured, and this continued down, and passed up the young shoots as a blackish stain. This stain proceeded from the external cut surface, not by the pith, but between the bark and young wood, and not being present below the growths indicates that the parasite entered by the wound. What the parasite is we are unable to say, as there is no outgrowth directly traceable therefrom, or is the mycelium at all characteristic of any of the fungi named; but if, as we anticipate, some parts of the affected growths become decayed and mouldy, we may determine the cause of the mischief, which may be a parasite of the worst kind. If such outgrowths appear we should be pleased to examine them. In the meanwhile we advise dressing the cuts—the old wounds caused in pruning—with a solution of sulphate of iron, 1 oz. to a gallon of water, applying with a stiffish or half-worn clean painter's sash brush. It would have been better to dress the whole cane or rod, and it may yet be done, using it on the old and last year's wood only. An application of air-slaked lime, dry and floury, to the border would also be beneficial, employing from a peck to half a bushel per rod, either leaving on the surface for washing in, or slightly pointing into the soil.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds

should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (W. K.).—*Dendrobium fimbriatum oculatum*. (P. B.).—1, *Lychnis dioica rosea plena*; 2, *Muscari botryoides* (Grape Hyacinth); 3, *Fritillaria meleagris alba*; 4, *Anemone pulsatilla*. (O. G. M.).—1, *Dendrobium Wardianum*, good form; 2, *Odontoglossum triumphans*; 3, *Cattleya Trianae*, very fine variety. (B. T. R.).—1, *Anthericum variegatum*; 2, a *Tradescantia*, varietal name undeterminable from such a withered specimen; 3, *Selaginella Kraussiana*; 4, *Adiantum pubescens*; 5, *Nephrolepis exaltata*; 6, *Dicksonia antarctica*. (Sunbeam).—*Ribes aureum*. (H. M. H.).—1, *Kerria japonica flore-pleno*; 2, *Amelanchier Botryapium* (Snowy Mespilus); 3, *Pulmonaria officinalis*; 4, *Cytisus albus luteus*; 5, *Epimedium alpinum*.

COVENT GARDEN MARKET.—MAY 8TH.

TRADE brisker. Indoor produce in full supply. The first consignments of Tasmanian Apples arriving soft.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per half sieve ..	1 6	to 4 6	Cobs, per 100 lbs. ..	15 0	to 0 0
" Nova Scotia, per barrel ..	10 0	21 0	Grapes, per lb. ..	1 6	4 6
" Tasmanian, per case ..	8 0	11 0	Lemons, case ..	10 0	15 0
			St. Michael Pines, each ..	2 0	6 0
			Strawberries, per lb. ..	1 0	5 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Beans, Kidney, per lb. ..	1 0	to 0 0	Mustard and Cress, punnet	0 2	to 0 0
Beet, Red, dozen ..	1 0	0 0	Onions, bushel ..	3 6	4 0
Carrots, bunch ..	0 3	0 4	Parsley, dozen bunches ..	2 0	3 0
Cauliflowers, dozen ..	3 0	6 0	Parsnips, dozen ..	1 0	0 6
Celery, bundle ..	1 0	1 3	Potatoes, per cwt. ..	2 0	4 0
Coleworts, dozen bunches	2 0	4 0	Salsafy, bundle ..	1 0	1 5
Cucumbers, dozen ..	1 6	3 6	Seakale, per basket ..	0 6	1 0
Endive, dozen ..	1 3	1 6	Scorzoneria, bundle ..	1 6	0 0
Herbs, bunch ..	0 3	0 0	Shallots, per lb. ..	0 3	0 0
Leeks, bunch ..	0 2	0 0	Spinach, bushel ..	0 0	0 0
Lettuce, dozen ..	0 9	1 6	Tomatoes, per lb. ..	0 6	1 0
Mushrooms, punnet ..	0 9	1 0	Turnips, bunch ..	0 3	0 4

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.—Orchid Blooms in variety.

	s. d.	s. d.		s. d.	s. d.
Arum Lilies, 12 blooms ..	3 0	to 4 0	Roses (indoor), dozen ..	0 6	to 1 0
Azalea, dozen sprays ..	0 6	1 0	" Tea, white, dozen ..	1 6	2 6
Asparagus Fern, per bunch	2 0	3 0	" Yellow, dozen ..	2 0	3 0
Bouvardias, bunch ..	0 6	1 0	" Safrano (English), dozen ..	2 0	3 0
Carnations, 12 blooms ..	2 0	3 0	" (French), yellow, doz. blooms ..	1 6	2 0
Daffodils, (dbl.), doz. bchs. (single), doz. bchs.	3 0	4 0	" (French), Red, dozen blooms ..	2 0	2 6
Eucharis, dozen ..	4 0	6 0	Smilax, per bunch ..	4 0	6 0
Gardenias, dozen ..	3 0	4 0	Tuberose, 12 blooms ..	0 4	0 6
Geranium, scarlet, doz. bunches ..	6 0	9 0	Violets (English), dozen bunches ..	1 6	2 6
Lilac (French) per bunch	5 0	6 0	Violets (French), Parme, per bunch ..	2 6	3 6
Lilium longiflorum, dozen	4 0	6 0	Violets (French), Ozar, per bunch ..	2 0	4 0
Marguerites, 12 bunches ..	1 6	3 0	Violets (French), Victoria, dozen bunches ..	2 6	4 0
Maidenhair Fern, dozen bunches ..	6 0	8 0			
Orchids, dozen blooms ..	1 6	12 0			
Pelargoniums, 12 bunches	6 0	9 0			
Primula (double), dozen sprays ..	0 6	1 0			

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (golden) dozen	6 0	to 12 0	Ferns (small) per hundred	4 0	to 6 0
Aspidistra, dozen ..	18 0	36 0	Ficus elastica, each ..	1 0	7 0
Aspidistra, specimen plant	5 0	10 6	Foliage plants, var., each	2 0	10 0
Azaleas, each ..	3 6	4 0	Genistas, per dozen ..	8 0	10 0
Cinerarias, per doz. ..	8 0	10 0	Hyacinths, dozen ..	9 0	12 0
Cyclamen, dozen ..	9 0	12 0	Lycopodiums, dozen ..	3 0	4 0
Dracena, various, dozen ..	12 0	30 0	Marguerite Daisy, dozen ..	8 0	10 0
Dracena viridis, dozen ..	9 0	18 0	Myrtles, dozen ..	6 0	9 0
Erica, various, dozen ..	9 0	18 0	Palms, in var., each ..	1 0	15 0
Euonymus, var., dozen ..	6 0	18 0	" (specimens) ..	21 0	63 0
Evergreens, in var., dozen	6 0	24 0	Primulas, dozen ..	4 0	6 0
Ferns, in variety, dozen ..	4 0	18 0			



BUTTER.

INQUIRIES about points of practice in butter-making which have come to us recently from several of our readers are a reminder that the circulation of the Journal is ever increasing, that facts with which its older readers are familiar are either quite unknown to new readers, or such knowledge as they possess is vague, indefinite, misleading, and that it is not only important but imperative that vital points of practice shall be repeated with sufficient frequency to help them, and we may well add, to jog the memory of old practitioners.

We are writing this article on May Day out among the dairy farms of the High Peak in North Derbyshire, and in a report of the Manchester Butter Market of this morning we are told that warmer weather and an increasing supply has brought prices down, giving buyers every opportunity of satisfying their requirements at all manner of rates, from 60s. to 90s. per cwt., according to quality, in Danish, Swedish, Irish, Hamburg, Australian, Finnish, and Russian butters. That Irish butters especially show good value, but the make of some sorts is fodderly and not yet keeping, except specially fine samples. That centrifugal creameries are coming well to the front, and making good prices, fully equal to the best Danish. This statement of the progress of business in what is claimed to be the premier butter market of England is specially significant as showing the marvellous competition in the open markets of this country, the profitable growth of home competition in the produce of butter factories, and as marking the difficulty of fixing quality at this season of the year.

The "fodderly" condition denotes the adverse influence of certain food on the keeping property of butter as winter merges into spring, and as a change is being made in the dietary from the "fodder" stores of winter to an addition of green food. It is precisely this bad keeping, this deterioration in quality soon after the churning, which puzzles many an inexperienced butter maker. The "fodderly" condition may be owing to the cows having bad hay, or a superabundance of Swedes, Mangolds, silage, or they may have had access to foul water, or if let out on pasture they have eaten every green plant so greedily that it is quite possible some poisonous plant may have been consumed by them. All or any of such things are to be regarded as predisposing causes of bad keeping in butter. The remedy, or rather the means of prevention, is in our own hands.

It is as clearly the duty, as it is to the interest, of every dairy farmer to know thoroughly how food affects the milk, what proportion of doubtful food he may venture to include in the dietary with safety—i.e., without any possibility of imparting bad flavour to milk or butter. Also the nature of the herbage of his pastures should be beyond a doubt. There are meadows in certain localities which have long been known as unsuitable for grazing dairy cows, as the butter always goes wrong when the cows are turned on to such meadows. How anyone can rest content with a mere knowledge of the fact without seriously setting themselves to ascertain the cause and to apply the remedy puzzles us.

Surely the day has gone by for dairy mysteries of any sort. Technical knowledge, and the advice and assistance of experts is now available in every country side, the day of the "wise" man or "wise" woman of the parish is ended, and the day of wondering why the butter will not "come," will not keep, or is streaky, ought to belong to the past also. Certainly all that goes to the management of dairy cows, to the manipulation of milk, cream, and butter is so simple, cause and effect in relation thereto are so clearly defined and so entirely outside the pale of so-called mysteries, that really good butter all the year round ought to be the general rule—bad butter only the result of an accident, a passing fault easily corrected.

We would have plain and simple rules of management, mastered by every cowman and dairy woman; especially would we have the term of cleanliness made clear to them in its widest and most comprehensive significance—cleanliness of food, water, air, buildings, litter, the cows' udders, the milkers' hands, dairy utensils, of everything brought in contact with the butter, all tending in the direction of the prevention of faults, of the avoidance of vexatious losses, of the exercise of especial care in spring and autumn, of that crown and finish of the work—the production of butter of the highest possible excellence always.

WORK ON THE HOME FARM.

All really well managed pasture had a full bite of herbage on May Day, to the quick, strong growth of which genial showers and warm nights during the last days of April materially contributed. There is always some risk of butter troubles as turn out time approaches. A little extra care in feeding and in churning soon sets matters right, or rather prevents any serious mischief, and when the cows are fairly settled down to grazing both colour and flavour in butter should be at their best.

Look closely after cows, especially delicate ones, for the first two or three weeks after they go out to grass, as it is then that cases of hoove, or distention of the stomach by gases generated by the stomach being packed with a large mass of food, which the afflicted animal appears unable to digest. In our experience such cases have not been of frequent occurrence, and one easily detected, first by the cow getting away from the herd, standing alone listless, neither grazing nor ruminating, its head hanging down, its stomach much distended, its whole appearance denoting suffering. Prompt action must be taken. It is always best to call in a veterinary surgeon, but if one cannot be had at once, and the cow by its moaning shows that it is in intense pain, it should have a strong purgative, and the gas made to escape by the insertion of a short tube through its hide.

The rough but efficient method of the old cow leech was repeated doses of Epsom salts as internal treatment. Externally, at a distance of two moderate spans from the nearside hip in the direction of the head and in a line parallel with the spinal column, the hide was pierced by the point of a sharp knife, and a wooden tube thrust in. This tube was cut from the Elder tree, planted for this purpose near the cowyard, with bark and pith removed, and a leathern flange let into a nick near the outer end of the tube, which was about 6 inches in length, and through which the gas at once escaped with such rapidity that the cow had immediate relief. Subsequently the cow was dried off and fattened, as it was thought to be unfit for breeding again, and there was much risk of a recurrence of the hooven condition.

HOME-RAISED CABBAGES.

A FRIEND writes the following:—"A neighbour of mine has been in the habit of getting his Cabbage plants for lamb food from South Lincolnshire at so much per 1000. Last autumn, having near home a piece of land suitable for the purpose (about 1 acre 1 rood), he bought instead 15s. worth of seed, an early variety called, I believe, Emperor. Fortunately for him the bitter frost was accompanied by a great depth of snow, and this effectually preserved the plant life beneath. He drew out 40,000 of the best plants for his own use, and then found he had a few to spare. These few brought him the comfortable little sum of £14, a sum not to be despised in these days of deep depression. Personally, I think he might have made more of them; but being new to the trade he hardly knew where to place them to the best advantage."

[In a lecture delivered at Nottingham five or six years ago Mr. J. Wright stated he had been "admiring 3 or 4 acres of Mangold Wurtzel—the finest crop he had seen, and valuable; but was startled on being told it was the second crop, and that the grower of the Mangolds had drawn £200 out of the land the same spring. This was by the sale of such plants as above named—Savoys, Cabbages, and others, from 150,000 to 200,000 being pulled daily for a month, and sold for 1s. 6d. to 3s. a thousand, sent off in truckloads to his salesmen in large markets." That example of profitable culture was in South Lincolnshire, and the thrifty farmer is not in the least likely to go to the workhouse.]

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1895. April and May.		Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	28	30.037	48.2	48.7	N.	48.9	55.0	44.4	100.2	43.1	—
Monday ..	29	30.185	51.7	49.6	W.	48.1	67.1	35.6	110.4	31.1	—
Tuesday ..	30	30.239	53.9	49.9	N.W.	49.7	64.2	43.1	101.9	37.8	—
Wednesday	1	30.179	57.3	50.9	N.W.	50.0	64.2	45.2	109.6	39.2	0.039
Thursday ..	2	30.606	52.7	45.2	N.	49.0	64.4	35.7	107.9	30.2	—
Friday ..	3	30.532	56.1	48.9	N.	50.0	63.7	40.1	114.3	34.1	—
Saturday ..	4	30.514	54.6	49.1	N.	50.9	67.8	43.0	114.9	34.1	—
		30.327	53.5	48.6		49.5	64.2	41.0	108.5	36.2	0.039

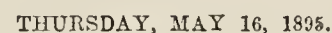
REMARKS.

28th.—Overcast morning, frequent sunshine in afternoon, bright night.
29th.—Bright sunshine all day, fine night.
30th.—Sunshine most of the day, but cloudy at times in afternoon.
1st.—Generally sunny in morning, cloudy afternoon, with rain from 3.30 to 4.30 P.M.; fine again later, and clear night.
2nd.—Bright sunshine throughout.
3rd.—Bright sunny morning, cloudy at times in afternoon, and windy.
4th.—Unbroken sunshine, with fresh breeze.
A very fine week, with two slight radiation frosts and bright sunny days. Shade temperature, near the average.—G. J. SYMONS.

A VERY SPECIAL HALF-CROWN LOT.

Archibald Grant	Favourite	Marchioness of Tweed-
Ardwell Gem	Goldfinch	dale
Annic King	Holyrood	Sweetheart
Blue Cloud	Iona	Sylvia
Bullion	James Cocker	True Blue
Colleen Bawn	J. B. Riding	White Duchess
Columbine	Laveruck	White Flag
Countess of Hopetoun	Lord Elcho	Wm. Neil
Countess of Kintore	Mrs. H. Bellamy	York and Lancaster
Dorothy Tennant	Mrs. Kinnaird	Picotee
Duchess of Sutherland	Mrs. C. Turner	Violetta
Edina	Mary Gilhert	

WM. CUTBUSH & SON,
HIGHGATE NURSERIES, LONDON, N., AND BARNET, HERTS.



The blossoming time is a fortnight (more or less) later than was the case last year. But does this afford assurance that a harvest of fruit will follow? Not necessarily; for if the cold wave, that seems bound to come in May, should be of an intensity equal to that on the memorable 20th of the month last year, the lateness of the blossom and the consequent youthfulness of the tender fruit cannot prevent destruction. If security rested in lateness, then would the Apple crop of last season have exceeded in abundance that of the Pears, the fruits of which were more firmly set, older, and more hardy at the time the frost swept through the land. Therefore, the early blossoming Pears largely escaped, while the later blossoming Apples generally succumbed. Not until we have a race of Apples that flower after the 20th of May and onwards for a week can crops of fruit be regarded as absolutely certain any more than Heliotropes, Dahlias, and other tender plants can be held to be safe which are "bedded out" before that time. It is true that summer-like days and balmy nights have tempted the

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exposure of such tender plants sooner, and they have sometimes prospered, but it was more by good luck than good management. It is all the same fortunate that such escapes are possible, or it would be a dreary outlook for fruit growers who cannot protect their trees.

When gardeners and others so manage fruit trees that they are wreathed with stout blossoms on firm wood, from the base to the extremities of the branches, they have done their share and their duty, and, taking one year with another, the yield of fruit, assuming the varieties are of the best, will repay for the outlay in cultivation, provided the site and soil are not inherently unfavourable for the attainment of the object in view. In this fact, for fact it is, there is hope and encouragement. The man who possesses the soundest knowledge on the subject of fruit, and who exercises the best judgment in the choice of site, soil, and varieties, at the same time following the most intelligent methods in procedure, is bound to have an advantage over his fellow worker, who, through lack of knowledge, pursues an erroneous course of routine. One of the questions asked by the Royal Horticultural Society for students to answer is whether trees can be made to resist canker and other maladies by good management and cultural attention? We are not quoting the question, but simply giving its purport. Undoubtedly those evils can be, to a large extent, prevented when their nature and origin are understood; and similarly, though perhaps less certainly, the blossoms of fruit trees can be, to a material extent, hardened—or sufficiently so to enable them to escape destruction by a passing frost to which others might succumb.

If this were not so, why is it that a plantation of several Apple trees in well-chosen varieties planted at Chiswick nearly twenty years ago have never failed, in spite of varying seasons, to give good crops of fruit, and in most years very abundant crops, while other trees in the gardens have often been barren? As there is a reason for everything, there is naturally a reason for that disparity. The trees which bear unfailingly are on a surface-rooting stock. A multitude of fibres ever dividing in firm fertile soil produce firm, short-jointed, fertile wood; and if the branches of the trees are so thinly disposed that the sun can shine between them—every leaf, so to say, being directly exposed to its influence—a maximum amount of starch will and must be manufactured, and this and other mineral matter deposited and stored in the buds and the stems—ten times more than is possible when a thicket of growths is produced by constantly shortening the branches for cutting the trees into shape, and driving strong roots downwards, as robust summer growths will do, and the more certainly if the surface roots are either starved out by the lack of an occasional top-dressing or dug out by the reckless use of the spade.

It should never be forgotten that as the roots of trees are so are the branches. If the parts of a tree within the ground are long, strong, and fibreless, so are the parts above ground, long, strong, and tissueless; and if the leaves are made in a crowd, each endeavours to stretch itself out for reaching the vitalising light which the "cultivator" denies it, becoming apparently large and strong, but really thin, weak, and tender; then the blossoms (if any) are weak and tender in turn, for though the petals may be showy they will be flimsy, the essential organs weak, the pollen faulty, and the whole inflorescence vanishing under a whiff of frost or a few days of bright sun, leaving not the semblance of fruit behind. Now grasp the converse—a mass of small fibrous roots imbibing what the trees need, and producing not strong, long succulent stems, but short substantial growths; every leaf being free from its neighbour and the sunshine glistening on it, comparatively small in area, but stout, thick, and "hard," will do its wondrous work in preparing and depositing nutrient matter in bud and stem; and the essential organs of the plentifully formed flowers will be like the leaves, firm, structurally perfect, with pollen well developed, the whole tree and every part of it being in

the best condition for passing through a time of trial without the loss of the whole of the hoped-for fruit.

Thus it will be perceived by those who think the matter out on the lines suggested that the cultivator may do something towards turning the promise of May into fruition in the case of such of his trees that are under cultural control. But how? In a very simple way. There is nothing complex or elaborate about it, no mysterious manipulation, but just the exercise of rudimentary common sense. Start the trees right and keep them right. Shorten them somewhat after planting for originating the requisite branches, then be content with what may be thought too few, rather than doing more shortening for producing too many. With the branches absolutely clear of each other when in full leaf they will form blossom buds if not shortened, and will divide naturally for forming sufficient branches in most cases; cut them back closely, then blossom formation is prevented, and fruitless growths promoted.

"But surely if the young branches get strong we must cut them back," say some persons—or at least they do it. No, it may be the *worst* thing that can be done, at least if the too strong growing young tree is not dug up and replanted. This replanting is usually the *best* thing that can be done, and then there may be a little branch-shortening for balancing a tree. Get it into bearing, then use the fruit as a lever for governing the growth. If this is inclined to be robust let a good crop remain to subdue it; if growth is slow and likely to be weak, remove sufficient fruit to relieve the pressure and let the branches extend. Avoid stunting the tree by overloading it in infancy. If it make a foot of stout short-jointed extension growths as well as supporting fine fruits, few or many, and these growths are at least a foot asunder, a good habit will be formed—fruitfulness without exhaustion. A plantation of such trees will give little further trouble. The pruning will practically amount to thinning, the summer culture to hoeing, with an occasional surface dressing as the crop and growth suggest, pointing over the ground at the end of the season for sweetening the soil and neatness sake, but not mutilating the roots.

It is in that easy way that this Chiswick plantation has been rendered so productive year after year. The trees grew for a time at about 6 feet apart, half of them being eventually removed for extending the plantation and affording needed room for the remainder. Each variety has been allowed to assume its natural form. There has been no pruning into ideal uniform shape, as that would have militated against productiveness. The trees have been pictures of beauty of late, and if a bountiful crop of fruit does not follow it will be the first failure.

Another thought arises. Some reader may attach importance to the particular kind of stock on which the trees are established, and fancy that this is the secret of the success achieved. Mr. Barron does not think so, for a very good reason. Some rather extensive experiments are tending to show that there is not so much magic in stocks as is popularly supposed. The productive trees described are on the French Paradise, but several others on different kinds of stocks for showing their distinctive influence, might be said to be growing provokingly alike if they were not doing so uniformly well, which is *not* provoking.

AMONG THE ALPINES.

THE "merrie month of May" has again rolled round, and with it in their simple beauty the alpine and rock flowers. As each season comes we have something fresh to study and admire, every bloom with a beauty peculiar to itself, and as they arrive we are apt to think that this or that reaches our ideal of a flower until it fades and something else bursts forth, perhaps in form and beauty entirely different to its forerunner, but still it has its own charm, which silently appeals to us in language so irresistible that we feel obliged to give up all thought of forming an ideal, and are content to welcome and admire them all as they come and go.

The Hyacinths, Daffodils, and Tulips with their brilliant colours have barely passed away, when, to fill the gap thus formed, there come the alpine and rock flowers with their much more simple, but no less charming beauty. Unlike the former they seem

almost too modest to show themselves, and love to hide away in quiet sequestered nooks, to such an extent in fact that it is often a puzzle to find them. This love of solitude seems to bear out the words of the poet Gray, when he says, "Full many a flower is born to blush unseen."

That they are not, however, always grown under these conditions was proved in a recent visit to Dulwich Park, where they may be seen blooming in profusion sufficient to raise the enthusiasm of any true lover of the species. "Alpines in a London park?" I fancy I hear some reader exclaim. Yes, my friend, and such a collection that you would have to go a long way to excel. In recent issues of the *Journal of Horticulture* I have endeavoured to give some idea of the flowers in the metropolitan parks in the West and East, but at Dulwich, in South London, the display, though equally effective, is of a very different character.

The rockeries are situated in the most conspicuous places, chiefly facing the main entrances, and in the character of their formation it is easy to see that artistic rockwork was not the end in view, but rather to provide a suitable home for the plants, and indeed in this the point has been gained, for in spite of the severity of the past winter they look exceedingly healthy, and present such a variety and profusion of bloom that cannot fail to be appreciated by the public, for whose sole benefit they are provided under the auspices of the London County Council.

So varied are the conditions under which rock plants grow that there is hardly a conceivable position which cannot be made beautiful by careful planting, some delighting in the deepest shade, while on the other hand others luxuriate in the brightest sunshine. Very conspicuous along the rockeries at Dulwich are the bright yellow flowers of *Alyssum saxatile compactum* (Gold Dust). So well known is this free-blooming variety that it seems needless to dwell on its beauty, and so striking is it that no rock garden could be considered complete without it. *Saxifragas* are to be found in such numbers that it would be difficult to attempt to describe every variety, so I shall be content with naming a few of the most striking.

Very pleasing in effect is *S. Wallacei*, which for the number and purity of its charming white flowers, in addition to its dwarf compact habit, cannot fail to attract special attention. *S. pyramidalis* is certainly one of the finest of the genus, though scarcely yet in full bloom, throwing up as it does tall pyramid-like flowers (from which it takes its name) resembling somewhat a cloud of foam. Very different in character, but no less pleasing in its pure simplicity, is *S. muscoides purpurea*, producing its large numbers of delicately coloured flowers from cushions of compact verdure. *S. Burseriana* and *S. (Megasea) crassifolia* are of course over, though the latter by its handsome foliage relieves any monotony that might otherwise exist.

S. Stansfieldi and *leptophylla* are both pretty whites, while in the mossy-like foliage of *S. hypnoides* there is a wealth of beauty independent of the flower. Very distinct is *S. Macnabiana*, as the foliage, of a whitish tint, has the appearance of being studded with beads. A very pretty and free-flowering variety is *S. Aizoon minor*, while may be seen a curiosity in *S. peltata*, with its tall conspicuous spikes of flower, which come before the plant makes its new leaves. *S. decipiens* is chiefly noted for the thick carpet-like form in which it grows, and in *S. zealandica* we have a pretty climbing variety indispensable in its capacity for covering rocks. *S. Andrewsii* bears a charming flower, and has large handsome foliage. The verdure of growth and brightness of the blooms of *S. Haworthii* formed a bright contrast, and the tall white flowers of *S. incurvifolia* swayed gently in the breeze. Amongst many others of the genus which go to make up the complement of *Saxifragas* at Dulwich may be mentioned *S. rotundifolia* with its greenish white leaves, *cochleata*, *capillaris*, and *oppositifolia*.

In addition to the above many other flowers claim attention. There is *Aubrietia Campbellsii* in its intense vigour covered in great profusion with its violet-purple flowers of dwarf habit, and in a shady corner was noticed the rosy purple flowers of *Primula cortusoides*. *Iberis sempervirens* is very effective with its pretty white blooms, and the graceful flowers and leathery leaves of the *Epimediums* (more commonly known as Barrenwort) add variety to the collection. *Phlox setacea* is truly at home at Dulwich, its dwarf compact masses of evergreen foliage covered with bright rose flowers being particularly effective. Growing close by is *P. procumbens*, with purplish-green foliage studded with clusters of lilac-coloured blooms, and very charming also in its creeping habit is *Veronica rupestris*.

Among the *Sedums*, all of which have a beauty peculiar to themselves, may be mentioned *brevifolium*, *kamtschaticum*, the ever popular *glaucum*, *montanum*, *grandiflorum*, rightly named from its fine yellow blooms, and *album*, one of the most pleasing, clothed as it is with pretty white flowers. Mention must be made

of *Spiraea filipendula*, with its Fern-like foliage surmounted by double feathery blooms.

Androsace sarmentosa occupies a prominent position. It is a most interesting species, having downy leaves and flowers of a bright rose centred with white. Another plant adding its full share to the display is *Tiarella cordifolia* or "Foam Flower," as it is commonly called from the density of its feathery white blossoms. *Armeria maritima alba* is a charming alpine with pretty white flowers; as also is *Arabis albida variegata* of the same colour, the foliage being described in the name. None of the whole genus is deserving of higher comments than *Geum montanum*, which produces a mass of star-like yellow flowers on stalks sufficiently tall to make them very effective.

Silenes in variety are perfectly at home here, amongst others being the evergreen form of *alpestris*, covered with white blossoms; *acaulis alba* of the same colour, and growing in moss-like tufts, being no less beautiful. In many places the rockery is clothed with dense masses of the pretty *Omphalodes verna*, and *Dielytra spectabilis* (Bleeding Heart) also finds a place. Many of the *Thymuses* are worthy of comment, amongst others being *montanus*, *coccineus*, and *lanuginosus*.

A pretty peep in the park is the "Snake's Lane" (why so called I fail to imagine), rendered extremely so at this period of the year by the presence of many of the above alpines. Unfortunately, the severity of the winter has totally destroyed the Wallflowers, which are usually so conspicuous here, but in spite of this it is quite a feature. Along one side are stumps of trees, dotted diffusively about and covered with Ivy, from the base of which may be noticed peeping forth clumps of Primroses, Lily of the Valley, and Wood Hyacinths, together with large masses of the *Asperula* or common Woodroff.

Alpines are not the only flowers grown, as *Polyanthuses*, *Auriculas*, and late Tulips are planted here and there, while large spaces covered with blue Forget-me-nots form a picture in themselves. *Funkias*, *Pulmonaria officinalis* and *Scillas* were also noted, and growing profusely on several of the aforementioned stumps is the simple white *Clematis montana*.

Flowering and ornamental trees and shrubs are largely grown, and will in the future add considerably to the beauty of the park. Among the former the Double-flowering Cherry is very fine, and the blossoms of *Pyrus japonica* and *P. Malus floribunda* form exceedingly bright contrasts. With the Laurels and other tender shrubs the frost has played havoc, and many present a pitiable appearance.

In conclusion, Dulwich may be safely called the garden park of London, and every part of it tells of constant attention and cultural skill. Situated in a pleasant district with air fresh and clear, it has of course advantages over many other such places of its kind in the metropolis, and the inhabitants of the southern district have every reason to feel proud of this pleasant resort. Any notes on Dulwich would be incomplete without mention of the able superintendent, Mr. W. Bailey, not only for the efficient manner in which he carries out all duties connected with his office, but for the kind and courteous manner in which he deals with all with whom he comes in contact, and amongst others—WANDERER.

BOTHIANA.

(Continued from page 401.)

LANGUAGES.

"A little learning is a dangerous thing,
Drink deep, or taste not the Pierian spring."

THE first experience of self-imposed tasks is one of irksomeness. Physical tastes and mental desires are not in harmony. Passing this crucial stage a spirit of tolerance ensues, to be succeeded by that love for the work which sweetens all labour. As weeks, months, and the varying seasons roll away, not any opportunities will be lost nor means neglected for progression. Happy and satisfied must the young student feel when reaching this stage of the journey. Most difficulties have been conquered, but the greatest victory is that gained over self. From hence not any spurring is required; in fact, a little restraint may be actually necessary. Temptation in a new form may assail you from a least expected point. More ambitious subjects than those advanced may lure you from work far from completion. The modern languages must ever have a fascination peculiarly their own when noting that the possession of one (or more) places its owner on a pedestal above his fellows. French and German, the first the language of chivalry and courtesy; the latter of the higher schools of philosophy, the arts, and sciences; how desirable are these. Yes, how few of us in the bothy could hope to attain

even mediocrity in the study of either, and that probably at the expense of sacrificing more important—if less showy—subjects.

Individual temperament must play a prominent part in both tuition. The most eager desire for knowledge if uncontrolled by wisdom is like a ship without a rudder. Rather keep to the highways and avoid the by-ways in your endeavour to reach the goal. Duty, according to circumstances or seasons, makes frequent calls on the leisure hour. These will be met with a cheerful response, and are reasons sufficient to clip ambitious projects, and confine them within reasonable bounds. Also bear in mind that one subject too many may prove the breakdown to all.

Should you feel equal to attempting anything beyond our good old mother tongue, try your 'prentice hand at Latin, which is relevant to the science of botany and the art of gardening. I would more strongly press its claims on you, were it not for those reasons already adduced. However, a slight knowledge of the Latin tongue will serve to digest many of our hard-sounding plant names, and will then impress on you the desirability of being acquainted in some measure with it can you spare time for it. The vigorous and healthy tone imparted to the mind by exercise will probably enable you to be the best judge of future requirements. The pole star of reason, rather than meteoric flights of fancy, will then light the road on which we part company. Yet, I am loth to leave you until your attention has been called to a very different subject, but a very important one—viz., habits.

HABITS.

"As the twig is bent, so is the tree inclined."

Habits, good or bad, are the garments woven in youth which must perforce be worn through life's journey to the grave. True, it is never too late to mend bad ones nor to cultivate good ones; but a mended thing is but a poor thing at best, and the tear remains. The moral power if granted later on in life to amend, which I fear is seldom the case, is accompanied by remorse that a superficial view might endorse the proverb that "It is better to live in a fool's paradise than in a wise man's purgatory." But this aspect of the case must not, cannot be tolerated by an educated mind. Our ideal of life must be a high one; the very nature of our work and thought should make it so. There is not, I presume, a gardener in existence who does not, in each and every subject under his hand, endeavour to improve on his methods of culture as the seasons wax and wane.

How much more should it be the constant endeavour to sow in the seed time of both life and to cultivate such things, such habits as may be harvested to advantage later on. The motive cannot be an entirely selfish one; such must be in some measure shared by another rising generation. It is a question I would not enter into dogmatically. It is a question I am diffident of entering on at all; but it is one of such high importance to you, my young brother of the craft, that I feel you should not be deprived of the smallest iota that my pen, though all too feebly, may be able to convey to you. Would that it could bring to you in letters of gold the blessings attendant on good habits, or show up in letters of fire the bitter fruits of bad ones. Experience is a dear school; need you be of the class who will learn in no other?

From the extent of this subject, the varied phases of it, and the delicate handling many of them require, a more pretentious pen than mine might fail to do it justice. An outline weakly drawn is the most I can offer. You, and you alone, must fill it in, for who can fathom the mystery of the human heart? To each, and to all of us, temptations come in varying shape and form; some from within, others from without. Of the latter, should you have happily taken up in serious earnestness the course of both studies, some will be avoided. Others will, by the strengthening of mental vision, be seen by you in their true colours, whilst all will be brought to your notice by "The still small voice." You will do well to heed it. Intelligence can hardly fail to understand much that cannot be expressed; yet some side lights bearing on your welfare now, and success hereafter, may escape notice.—
AN OLD BOY.

(To be concluded.)

GARDENERS' TULIPS.

I HAVE ventured to entitle the remarks that follow "Gardeners' Tulips" in order to distinguish them from the refined forms grown by Tulip fanciers, and which are beyond the reach of most gardeners. Those to which I wish to draw attention are cheap, and therefore may be cultivated in numbers; easy of culture, consequently suited to all gardens; exquisitely beautiful, and on that account indispensable. Species and varieties are numerous, and every one that I have flowered has possessed good qualities

that has rendered it desirable to grow. A fairly good collection therefore affords very much pleasure.

Like the beauty of Poppies, that of Tulips is erroneously thought to be evanescent. In our northern climate, at least, the flowers are quite as lasting as those of Daffodils or Irises; and filling, as they do, the void betwixt all but the late kinds of the former, and the earliest of the summer flowering Irises, they have among garden bulbs a distinct position of their own. Moreover, where the early single and double Tulips are forced, as well as grown out of doors, their season extends to quite six months. I began last November with Duc Van Thols, and it will be nearly, if not quite, the end of June before the latest will be past. Out of doors last year, for instance, the season extended to four months; this year it will be shorter, as spring was quite three weeks later in coming.

The cultivation of Tulips presents no difficulties. A friend of mine grew them for years most successfully on a clay of so strong a nature that the garden walls were constructed of bricks manufactured out of the garden soil. *Tulipa sylvestris* grows wild here and flowers annually, growing in a wet clay. Going to the other extreme, I have another friend whose garden is a bit of rock hidden by a thin layer of soil, and here also Tulips succeed. In our own case the soil is light, some of it gravelly, but provided sufficient manurial aids are given they grow, flower, and increase. Parrot Tulips, for instance, during the many years I have grown them, have not once failed to bloom. The bulbs, however, must not be allowed to remain for too many years without being divided and transplanted. The ideal method no doubt would be to lift and replant every year, but it is impossible with other work pressing to do this, and a triennial overhaul will meet their requirements. The bulbs may be lifted either when the foliage dies down or in the autumn. Unlike Daffodils they do not root when left in the ground, and early lifting is in consequence of less importance. Though I have planted them later I consider the first or second week in November as the latest limit for planting. The uncertainty of the weather at that season and the condition of the soil each point to the wisdom of not delaying planting longer than the time named.

Though Tulips are gorgeously beautiful as garden flowers, I cultivate them primarily for cutting. In order to secure a long season and also to find space for a large number, I have them planted between lines of Gooseberry bushes, underneath the branches of Apple trees, on north borders, and some in special beds. The value of the flowers for decorating apartments is great, while when cut no flower travels better. It is necessary, however, to select for this purpose unexpanded blooms. If a number is required for any special purpose, the flowers, if cut young, keep in the same condition for a week at least if laid out on paper in a cool room and kept moist. A sheet of paper laid over them obviates the necessity of applying water oftener than once in three or four days. The merit of this method consists in the buds remaining at exactly the same stage as when cut, whereas those placed with the ends of the stalks in water expand, though very slowly. When packing to send a distance the flowers are first tied in bunches, then each bunch is wrapped round tightly in a sheet of thin paper, and the whole laid closely together in shallow boxes or hampers.

Some Tulips, though very pretty, are so dwarf that they are of no value as cut flowers. Of these one of the brightest is the narrow-leaved *linifolia*. The earliest to flower are *elegans* and *retroflexa*, the latter soft yellow in colour, and each of the segments curving backwards in the most charming manner. The other is bright crimson, with the flowers of much the same shape, but perhaps less graceful. A week or so later a number of sorts expand, and among them is *elegans alba*, a very pretty flower; *albiflora*, cream coloured; *vitellina*, a species with flowers of a sulphur shade mixed with green. Following these is *amoena*, a most charmingly coloured kind, whitish yellow flamed with carmine; *fulgens*, intensely bright flowers on very tall stalks; *Golden Eagle*, bright yellow and carmine; *Picotée*, white with rosy edgings, and much like *elegans alba*.

The Parrot Tulips, with their quaintly scalloped petals, curiously marked with many shades of green, red, and yellow, also flower with these, also the earlier of the breeder section and the show varieties. For cutting selections of the latter can be purchased very cheaply. Those called by the Dutch *rose bybloemens* are, I think, the prettiest of all. The ground colour in these is white, and the markings of all shades from rose to carmine. The breeders again are of much value, and are to be had in different hues. Among the latest to bloom there is none brighter or more useful than the old *Gesneriana*. This increases so rapidly that the bulbs require to be lifted and divided every second year. *Golden Crown* is a very good yellow form; but the finest, as also the latest yellow, is *Bouton d'Or*. The colour is deep and bright, and altogether few kinds are equal to this. *Rosacea alba*, *billietina*,

and *virginalis* are species which are late flowering, and also well worth growing.—R. P. BROTHERSTON.

[Mr. Baylor Hartland has sent us a box of Tulips, which admirably confirm the remarks of our correspondent respecting the decorative value of these flowers. Some of the varieties named by Mr. Brotherston are included, with one or two others which we fail to identify.]



ORCHIDS AT SUNNINGDALE PARK.

ABOUT two years ago an opportunity was afforded of an inspection of this collection, and it proved so good and full of promise that it was recently revisited. The collection then showed excellent and discriminating choice of sorts, and also the presence of a master hand in Orchid culture. To-day, while it is still in its infancy, it comprises some rare plants, not alone as regards the number in commerce, but also from the point of view of excellent cultivation. For the improvements in the Sunningdale Orchids credit must be accorded to Major and Mrs. J. Joicey, their son, Mr. J. Joicey, and also to the gardener, Mr. F. J. Thorne, who looks after them with such indefatigable and praiseworthy zeal.

Numerically this collection can never attain to the standard of the Burford and The Dell collections as the accommodation is too limited, but this is not of particular consequence so long as the improvement in quality that has gone on during the past two years is maintained, as it must do while such an amount of interest is concentrated on it. Orchids alone cannot command the whole of Mr. Thorne's attention and time, as it is incumbent on him to provide everything pertaining to the garden, but reference in this column can only be made to the Orchids, so the remainder has been relegated to a future issue. To particularise all the species and varieties would obviously be an impossibility, therefore a few only will be named as possessing some peculiar merit, either of colour, rarity, or cultivation.

We will accompany Mr. Thorne in a hurried peregrination through the houses, and see what there is to be seen, and it is apparent from the confident manner in which he pilots you that he knows he has something worth showing. A plant of *Odontoglossum* or *Miltonia vexillarium* in an 8-inch pot first attracts attention, but it is not until it is placed on the floor that its full merit is recognised. It is then seen to carry an enormous number of spikes, and counting reveals thirty-nine, each averaging seven blooms on a spike. What a picture it presents with its healthy growths and bright rose-hued flowers. Words could scarcely convey



FIG. 70.—*ODONTOGLOSSUM CERVANTESI DECORUM*.

the full beauty and the appreciation felt on beholding it, so grand, so magnificent; indeed, it is perfection, than which more cannot be said. There are numerous other plants of the same sort, not perhaps so large, but all in splendid health and carrying fine spikes of perfectly formed flowers. These alone are worth a long journey to see, and it is probable that one would have to travel a very long way before one could meet with such examples.

Dendrobium atro-violaceum is rarely seen in such superb condition, and the Orchid Committee of the Royal Horticultural Society did rightly in according to the Sunningdale plant a cultural commendation when it was staged at the Drill Hall a few weeks ago. The specimen is now, and has been for the past nine weeks, carrying three spikes of blooms, each admirably formed and beautifully coloured. The richness and form of the lip are perhaps the best features, though the size and evident health of the plant are matters of surprise to many growers who have cultivated it with scant success. The writer delicately hinted that this plant with the one particularly referred to in the preceding paragraph would be acceptable to him if Mr. Thorne had done with them, but received a look of astonishment at the presumption. And the plants—well, they stayed where they were.

One of the best features here are the *Cypripediums*, of which there are numerous varieties of a very high order of merit. Amongst these Mr. Thorne has made some very interesting crosses, and it is hoped that the results will be sufficiently good to repay



FIG. 71.—*CYPRIPEDIUM GODEFROYÆ (?) LEUCOCHILUM*. (See p. 433.)

him for his time and labour. *Niveum* is represented by superb form, while *Exul* in better character is seldom seen. Remarkably handsome is a very dark *barbatum*, as also are a number of varieties of *villosum*; *superciliare* is perfectly at home, and *caudatum* has petals fully 30 inches in length. This is a grand flower, well worthy all the care and attention bestowed on it. Though these do not by any means represent all the *Cypripediums* grown, they must, with the bold and striking *Elliottianum*, suffice to permit of reference to other sections.

As we make progress in our inspection we come to the *Odontoglossums*, and amongst them find very many to admire. One plant from a cross between *Pescatorei* and *crispum* is now carrying two spikes, one of ten and the other of six blooms, each chastely beautiful in colouration and of splendid form. Equally noticeable are plants of *luteo-purpureum*, *maculatum*, *cordatum*, and numerous others, all in the best of health and condition. Particular mention amongst so many handsome sorts may still be made of a superb form of *Cervantesi decorum* (fig. 70), which was perfectly formed and marked. There are some hundreds of *Odontoglossums* of various species and varieties, all in the best possible state of health.

*Oncidium*s, too, are a grand sight, the immense spikes of brightly hued flowers denoting health and strength. Perhaps the best of all was *ampliatum*; though numerous, others were very fine. *Cattleyas* are not at present carrying many flowers, but the stock is composed of some of the best sorts extant. A grand variety of *Skinneri* attracted attention, as also did a superb plant of *Cymbidium Lowi*, while a very pale form of *Vanda teres* elicited much admiration. The upper sepal is very pale rosy white, the lower sepals almost pure white, and petals blush.

It would not be doing justice if these notes concluded without a reference to the Dendrobiums, which are largely grown for floral decorations. In fact all the Orchids are more or less pressed into this service, and are very highly appreciated. A very beautiful flower is that of *D. chrysotoxum*, and the same may well be said of *D. c. suavisimum*. Equally as attractive, though not perhaps so showy, is *D. Pierardi latifolia*, which is now wreathed in its delicately tinted blooms. These are but three out of many, but they must suffice, at any rate for the present.

Before leaving the Orchid houses, of which some are new and more will soon have to be erected if the collection, as it is hoped it will, continues to grow at the present rate, we remarked on the extreme cleanliness and tidiness that prevailed, and which certainly materially improved the general effect. The plants are as clean as the structures, no evidence of insect pests being readily perceptible. This freedom from such enemies must, to a certain extent, account for the great substance of the growth and the leathery texture of the leaves, for these could not come from plants that had their energies sapped in any way.

Master of the cultivation of Orchids is Mr. Thorne, and it is apparent that he is thoroughly engrossed both in their growth and their improvement. Some day it is hoped another chance will arise of a visit, and when it does it will be seized, as affording pleasure and instruction at one and the same time.—W.

SALE OF THE HOLLY LODGE ORCHIDS.

THIS fine collection of Orchids, brought together by Mr. W. Bown, Birmingham, was disposed of on the 8th and 9th inst. by Messrs. Protheroe & Morris. Comparatively low prices were the result. Mr. J. Earle, a new amateur grower, was the principal purchaser, whilst a smaller complement of the choicer varieties were secured by Mr. W. B. Latham for the Botanical Gardens, Edgbaston. Messrs. Cypher of Cheltenham purchased a grand specimen of *Cymbidium eburneum*, which last year produced thirty-five spikes of blossom.

The major portion of the collection went Londonwards, including a huge specimen of *Cattleya Mossiae* with over 500 bulbs. Among other large specimens sold, mention may be made of particularly a grand plant *Epidendrum prismatocarpum* with 150 bulbs and growths. Excellent health appeared to prevail over the collection generally, and reflecting much credit on Mr. J. Palmer, the accomplished and painstaking gardener.

JUDGING AT SHOWS.

A CORRESPONDENT, who seems grieved because he was disqualified at a show last year, says he is "getting out of patience" in waiting for the report of the Judging Committee. He seems to have a grievance against certain Judges both in hardy flower and fruit classes, and he "wants something settling about Tomatoes." The Judges may or may not have been in fault, all depending on the terms of the schedule and their interpretation. Our friend will have to wait a little longer for the report he covets, and in the meantime may ponder over an extract we take from the "Journal of the Royal Horticultural Society."

"After turning this question [of judging] over and over in my mind," says Mr. James Douglas, "I found it to be one of the most difficult subjects I ever attempted. It has been my lot several times to judge an entire exhibition single-handed, and I have managed to get through it in good time for the admission of the public. This, the practical side of the question, is one thing; explaining to others how to go and do likewise is another; but, having been successful as a practical man, I will do my best to put on paper something of the 'Principles of Judging,' in order to afford at least a theme for discussion.

"The first point to consider is the framing of the schedule. This should be done with great care, as it must be the guide both of exhibitors and judges. Under the heading of 'Rules and Regulations' every point ought to be so definite and exact that no mistake may be excusable and no difference of interpretation possible. Moreover, the schedule must always be interpreted by what it grammatically says, and not according to the preconceived ideas, either of exhibitors or judges, of what it ought to say or mean.

"The four words, 'species,' 'kind,' 'sort,' 'variety,' are often used quite indiscriminately, sometimes even being interchanged one with another in the same schedule without any regard whatever to any difference of meaning. For instance, in the case of hardy herbaceous plants, the word 'variety' has been used when 'species' was intended. If either of the words 'varieties' or 'sorts' are used, an exhibitor would be within his rights if he staged only two or three 'species' or 'kinds' of plants in a collection of, say, twenty-four varieties. He might exhibit half a dozen varieties of *Delphiniums* and as many *Phloxes*, but if the word 'species' or 'kind' is used he may not exhibit more than one variety of each.

"Another question that may be asked, and not unfrequently is asked by judges, is, What is a fruit? and what a vegetable? The only possible way, I think, to decide this question, with due respect to grammar, truth, and equity, is to lay down and assert a principle, and say that fruits used in a green state, and as vegetables only, may only be shown as vegetables; but if a ripe fruit of any kind is used both as a vegetable and as a fruit it may be shown in either category. The only fruit that I know of at present which may be shown both as a fruit and as a vegetable is the Tomato, which truth forbids us to exclude from fruits and general use claims as a vegetable.

"In this place it may be well to remark on the folly of judging fruit by appearance only; it is about equal to the folly of judging flowers by their scent only. Appearance is a great point with fruit, so is scent with flowers, but neither is the chief point. The chief point with fruit is flavour, with flowers beauty. A blind man may have the sense of smell very acutely, but no one would trust him to judge flowers; and yet men judge fruit by sight only! I do not say that it is always necessary to taste a fruit in order to judge of it correctly. The great majority of fruits a good judge has no need to taste; he has sufficient knowledge of the quality and flavour of the fruit from the variety; but an unknown variety, however good looking it may be, should never go untasted.

"Of all evils, that of judging either flowers, fruits, or vegetables by size only is the worst. Size should in many cases be considered an actual demerit when the objects exceed certain standards well known to all good judges. Overgrown Potatoes, Cauliflowers, and Cucumbers are always left out in a close competition, and in every case quality should come first. The same remark holds good with fruit. Not the largest bunches or berries of Grapes, but first flavour and then colour should be given the highest points. A big Melon counts for nothing when compared with a medium sized one of superior flavour. The same with Pears and Apples. The Winter Nelis or Seckle amongst Pears would win against some varieties four times their weight and far more beautiful in appearance. So also would Cox's Orange or Ribston amongst Apples maintain the foremost place, on account of their superior quality, against the size and beauty of Blenheim Orange or Peasegood's Nonesuch. Even in flowers size can at the best hold only a third place. Paul Neron amongst Roses would never win in the class for Roses of any one variety; it is large enough, but lacks form and substance of petal. Size in a Carnation is, I know, by some considered the principal point, but no good judge would put size first unless it was accompanied by substance of petal and good form. Men are beginning to learn that even Chrysanthemums may be too large, and there are not wanting signs that in the not distant future mere size will not receive quite so much prominence as heretofore.

"No man can judge fruits, flowers, or vegetables aright unless he has a good knowledge of the different varieties. It is much easier to obtain good specimens of some varieties than it is of others, and the man who sets himself up as a judge should know how much skill has been required to obtain the productions placed before him, and good specimens of a difficult subject should certainly, in my opinion, receive an extra point to only equally good specimens of a subject that presents no difficulties of cultivation."

MODERN GRAPE GROWING.

(Continued from page 379.)

PLANTING THE VINES.

MANY things have to be known and thought over before one can advise as to the planting of Vines. Are the Vines to be of the first importance, and will everything else that may be grown in the house or in the border be secondary? Is the fruit wanted of first-class quality, or will a large quantity of fairly good fruit satisfy? Is it desirable to have the fruit as soon after planting as possible, or is it, what is most common nowadays, a mercantile speculation, and the object to get as quick a return as possible for the outlay? There are so many ways and seasons for planting Vines, each of which perhaps has its merits under special circumstances, that it will be necessary to allude to most of them.

If Vines alone are to be grown, there will be little or no return the first year, but where a large sized house is in existence it is a general practice to grow something else during the first, if not, the second year. I know many people have an idea that you can grow a miscellaneous collection of things continually besides the Vines, and do them all well. I have sometimes seen a marvellous collection of plants in a small house, and have been surprised at the results achieved, but it is very seldom indeed that you will see any one thing done in this way up to the highest standard, and very often the poor Vines get the worst of it.

There can be no objection to merely housing a variety of plants in a vinery during the winter that require a temperature not higher than 45° to 50°, but any attempt at keeping the house going with flowers, or storing tender stove plants, is sure to end in disaster to the Vines. I was once called to give an opinion as to the ailments of some Vines which were thought to be infested with phylloxera. It was early in the spring, after a very hard winter, and the Vines had made long weak growths, with here and there on some of the rods a little bunch of Grapes, or rather what looked like a hybrid between a bunch and a tendril, and some of the canes had none at all. The foliage was thin in texture and pale in colour, and when the sun shone it went down like a tame rabbit's ears.

It was plain at first sight that whether there was phylloxera or not there was enough to account for the disaster without it. The house was full of plants in flower, including Pelargoniums, Bouvardias, and Euphorbias. I asked where the roots were supposed to be. The answer was, "Outside and inside."

On digging down outside we found a few, but very few, healthy roots of the previous summer's growth, but of course there was no sign of new growth. How could there be when the soil was very little above the freezing point? It was as I had imagined, there was no disease and no insects, the house had been kept warm all through the autumn and winter for the sake of producing cut flowers and flowering plants to furnish a conservatory, and the Vines being inside had of course started early into leaf, had exhausted their stored up supply of material, and there was nothing more forthcoming till such time as the summer sun should have warmed the soil of the outside border. The roots supposed to be in the inside borders of such houses are generally non-existent. Now, there were four vineries in the establishment, and the Vines at one time, judging by the size of their stems, had evidently done fairly well, but the times and the people had changed, and now two of the houses which contained the oldest Vines were ruined, and the others, if the same system is persevered in, will soon follow. The most surprising thing was that everything excepting the Vines bore the stamp of good cultivation, while the Vines themselves were disgraceful.

The lady of the establishment frankly owned, when the cause of failure was pointed out, that it was her own fault, and promised to give up at least one house, where the Vines should have the first care. But how many ladies and gentlemen are there who are not so reasonable, but who rather attribute failure to their gardener's incompetence, when they have been brought on by their own acts? Sometimes you may see a thing done well in a place by a man who has just one particular hobby, but if you see two or three totally different things done well, you may be sure that the man is capable of doing most things well if he only has the chance.

In older times it used to be the practice to draw the Vines outside the house and bind them securely with haybands during the winter, taking them inside again some time in March, and this old plan has much to recommend it where the house has to be used for tender plants in the winter.

The Vine will stand much bad treatment, but there are some things that it will rebel against. A gentleman said to me this spring, "I wish you would tell me what is wrong with my Vines; they had done fairly well till last year, and then the Grapes were so bad that I was glad to give them away to the school children to get them out of my sight." I asked particulars about the border. It was outside the house, sloped sharply to the south, was about 4 feet wide, with a gravel walk in front, and "my gardener" always grows his early Lettuces on this border. I concluded that as the roots had been chopped off continually in the so-called Vine border they had taken refuge in the gravel walk, and during the hot dry summer of 1893 had been starved, and showed the effects of it in the following year.

I recommended taking off as much of the hard surface of the walk as could be done without much injury to the roots, top-dressing it with some good loam, crushed bones, and bonedust, and grow the early Lettuces elsewhere, or buy a pennyworth as wanted from one of the numerous shops close by. Imagine spoiling a house of Grapes, and perhaps also the Vines, for the sake of two or three dozen Lettuces, yet I believe such practice is not very uncommon, and then the proprietor exclaims, "I cannot think how it is my Grapes have done so badly!"

—WM. TAYLOR.

(To be continued.)

PRESENT FLOWERING PLANTS.

WHERE a good collection of perennials are cultivated the borders and rockery may be made to look gay during April and May. The advantage of this class of plant over that of the ordinary biennial is a very distinct one following such a severe winter, when so much destruction has been dealt to Wallflowers and other plants. No part of the garden is more interesting than this, where so much variety of form and colour are obtainable. I give the names of some of the plants which are highly effective during the period named.

The Anemone family is an extensive one, comprising many showy and useful kinds. A mass of the deep blue appenina, the paler coloured blanda, the rich orange-yellow of ranunculoides, the pure white nemorosa flore-pleno, and the somewhat strangely formed and quaintly coloured pulsatilla, form an interesting and varied group. All are dwarf, suitable for the rockery or the front of the herbaceous border, easily grown, and rapidly increased.

Epimediums are not cultivated nearly so much as their merits deserve. Not only are their flowers interesting, but the foliage is extremely useful for cutting. The first to open is the pure white niveum, followed by the pale yellow lutea and Mariesi, all dwarf sorts, with richly coloured leaves. No more showy plant could be imagined at this season of the year than Doronicum austriacum, with its profusion of old gold coloured blossoms. The Bitter Vetch, Orobus vernus, is seldom seen in an ordinary private garden. Its purple and blue blossoms heavily veined with red are produced in showy masses. Adonis vernalis is not often seen growing in luxuriance; it dislikes a wet position and stagnation about the roots. Between two stones on the rockery it seems to find its requirements. In such a position it flowers freely every year.

Corydalis nobilis is the best of the Fumitories, and is well worthy a place in any garden. The pale yellow, green tipped blossoms are showy. Dicentra eximia is capital for the front of the herbaceous border, where it blossoms freely for several months. Its reddish purple drooping flowers are borne on thick fleshy stalks. Ranunculus amplexicaulis, with its heads of large pure white flowers, is attractive, and deserving of attention in all gardens. Globe-flowers are numerous now in shades of colour. One of the best is Trollius Ledebouri, rich orange yellow, not quite so deep perhaps as asiaticus, but larger individually. T. Gibsoni is deeper than asiaticus, and therefore deserving of extended culture. T. napellifolius is a large form of T. europæus, but a shade paler in colour perhaps.

Polemonium Richardsoni is of compact growth, and profusely covered with fine clusters of pale blue flowers. Of Irises we have pumila, growing barely 6 inches high, having rich purple flowers. Of Aubrietias Leitchlini, dark crimson, and Hendersoni, dark purple, are smothered with bloom—beautiful objects for rockery or elsewhere.

Potentilla salisburiense is a pretty plant, growing but 4 inches high, and bearing rich yellow single flowers. Auricula Golden Gem must not be passed lightly over. For the herbaceous border its golden yellow flowers are borne in profusion. Flowering now as freely as can be seen is a splendid proof of its hardiness and suitability to the purpose named. —E. MOLYNEUX.

EXPRESS GRAPE GROWING.

LAST week's Journal contained an interesting and instructive letter from the pen of Mr. John Thomson, which confirms much we should naturally have expected from the son of so eminent a gardener as his late father. I have seen many fine samples of the Clovenfords Grapes, and I am pleased to hear that these famous Vines are still in such a satisfactory condition.

Mr. Thomson states that their Vines planted in May, June, and July did so well, and ripened their wood so thoroughly, that all of them could have borne heavy crops of Grapes the next season. This I readily believe: the temporary Vines did bear a heavy crop, and finished the fruit splendidly. The only difference in Mr. Thomson's case and mine was that he did not fruit his permanent Vines, and I did, and was rewarded with a crop of first-class Grapes.

I referred in my letter of last week to a house of splendid young Vines I saw at Gordon Castle in the autumn of 1877. I have received a communication from Mr. Charles Webster, the present gardener, who was appointed successor to his late much-respected father, and in which he makes the following statement, viz., "The vinery you refer to I remember well assisting to plant; but having left for Dalkeith the following spring I could not say how many bunches each Vine carried, though I know they were fruited and the crops finished well." After giving details of the planting, Mr. Webster concludes by stating, "I quite agree with you that young Vines can be cropped the first season after planting with no bad effects to their future welfare, as I have myself recently proved."

It would be interesting to know how many of your correspondents have tried the experiment. As an ounce of practice is worth a pound of theory, I am afraid we often get a good deal of theory without much practice; let them go hand in hand, and then we shall make progress. We are apt to run in the rut for no better a reason than that our fathers and grandfathers did so before us. What has become of the bottom heat theory in Vine borders, which was the right and proper thing twenty-five or thirty years ago?

I am inclined to believe that we have even yet much to learn in Vine culture. I can see many changes taking place in both private and market gardens, and more especially in the latter. I notice that old Vines are being discarded and replaced by young ones, that the large and expensive borders are being dispensed with and replaced by small and inexpensive ones, which can be cleared out and replaced in a very short space of time without losing a season or crop.

I think everything must be done on the express system in these days, although I cannot lay claim to the above title, as I have put forward nothing particularly new. I have endeavoured to state a few plain facts as briefly and intelligently as I can, with the hope that it may encourage others, who still cling to the old theory, that they may with safety try the newer system, which must be coupled with judgment and discretion in the cropping and general management of their Vines. —W. INNES, Derby.

IN the articles on this subject, which are of great interest to market growers, showing the wonderful crops that Vines well grown can carry, I notice a most significant omission—viz., What did these wonderful crops of Grapes realise per lb.? It is not enough to say that they carried so-and-so and finished well, when opinions differ so much as to what is a good finish in a house of Grapes. The money they fetch in the open market is the all-important point. Perhaps Mr. Innes will say what his averaged per lb. I saw a house of Gros Colman last year which was the heaviest crop I ever saw of any Grapes. It was its second crop borne along about 12 feet of rod, and all the bunches were left on the Vines, many shoots carrying three and four bunches. The house was about 300 feet long, and carried 2700 bunches, which to appearance would average about 1½ lb. each. They never finished, and would make one sick to look at them, half green and red in December, though I was surprised to see even this finish on such a crop. They brought in open market 1s. 1d. per lb., but I do not know if all the crop, or only a part of it, was fit to sell. —MARKET GROWER.



EVENTS OF THE WEEK.—The event of the week for horticulturists, not alone of London, but of all the country, is the Temple show, which opens on Tuesday, May 21st, and continues during the two following days. Reference will also be found to it in another paragraph. The Southern show of the Royal National Tulip Society will be held on the first day of the Temple show.

— **THE WEATHER IN LONDON.**—As is noted in another paragraph the weather in the metropolis during the past week has been very hot and summer-like. During Sunday night a shower of rain fell, but did not continue sufficiently long to penetrate into the ground, which is now in many places becoming dry. A heavy fall of rain would now do a great amount of good.

— **WEATHER IN THE NORTH.**—The week following the 7th inst. has been one of fine weather with bright sunshine, tempered occasionally by coldish east wind. On Sunday, which was dull throughout, several gentle showers fell; Monday was extremely bright and warm; Tuesday morning dull with cold wind from the west.—B. D., *S. Perthshire*.

— **THE TEMPLE SHOW.**—We are requested to announce that the Fruit, Floral, and Orchid Committees will meet at the Temple Gardens on Tuesday, May 21st, and that certificates and awards will be granted as usual for meritorious exhibits; but we are further requested to state that "such awards cannot under any circumstances be issued from the Secretary's tent until Wednesday, May 22nd."

— **WELLINGBOROUGH HORTICULTURAL FÊTE.**—On Friday, July 25th, this fête will be held, and in the section for plants, flowers, and fruits several excellent prizes are offered. Prizes of £10, £6, and £3 are offered for twelve stove and greenhouse plants, distinct, and the competition should be strong. In the fruit section £2 are offered as a first prize for six varieties of fruits. These classes are open to all, but there are several open only to gardeners, others to amateurs, and others again to cottagers. The Hon. Secs. are Messrs. C. J. K. Woolston and T. Pendered, Wellingborough, from whom information may be had.

— **FRUIT PROSPECTS IN SCOTLAND.**—So far as my observation extends there is every prospect of an abundant fruit crop in Scotland this year. In the gardens of Logan House there is an imposing wealth of bloom. In my own garden, which has the advantage of great shelter, the Apple, Plum, Cherry, and Pear trees are white with blossoms. (I use this expression because white predominates, though pink in many instances equally prevails.) A Czar Plum in the centre of the garden, and a Morello Cherry on the west wall, are veritable pictures. There is nothing in Nature more beautiful than such trees in perfect bloom. The season is also balmy and benignant, and highly favourable for the development of the flowers into the fruit.—DAVID R. WILLIAMSON.

— **ROYAL BOTANIC SOCIETY.**—The first of the annual series of botanical lectures was given recently, Mr. G. W. Bell presiding. Taking as her subject "Fruits and Seeds: Their Structure, Means of Protection, and Dispersion," the lecturer, Miss Styan, treated in a popular manner the methods adopted to protect and disseminate fruits and seeds. While some were supplied with sails to move through the air, others had hooks and anchors or a screwing apparatus by which they were able to bury themselves underground, out of sight, many of these contrivances showing such remarkable ingenuity that, as the lecturer suggested, it was difficult to come to any other conclusion than that plants were able to think. In this country we had several examples of hooked fruits among our native plants, but the Cleavers and Burdocks of our hedgerows were not formidable like the fruits of the South African Grapple plant, which have been known to destroy even the lion itself. The fruits, some 4 or 5 inches in diameter, are covered with sharp, claw-like appendages; while endeavouring to remove these from the skin the animal gets them fixed in its mouth, and being unable to take food dies of starvation. These lectures are fixed for the Fridays in May and June, and are free to all visitors to the gardens.

— **THE ROYAL GARDENERS' ORPHAN FUND.**—Friends of this excellent charity, which is deserving of all possible support, will be pleased to hear that the late Mr. George Taber bequeathed to it £100 in the form of four £25 shares in the well-known seed business of Messrs. Cooper, Taber & Co. of Southwark Street. We also learn that Mr. Sherwood has undertaken to subscribe the requisite amount annually for the support of one of the children who failed to be elected as a beneficiary of the Fund at the last annual meeting.

— **HYACINTHS AND SEDUM.**—For producing a pleasing effect Sedum glaucum makes an excellent carpet for growing Hyacinths. The glaucous tint of the Sedum is especially fitting to the various colours of the Hyacinths above. It does not appear to matter whether the Hyacinths are growing in a mass of one colour only in a bed or whether the colours are mixed, the effect appears to be the same—satisfactory. A thick carpeting of Sedum is much more pleasant to look on than the naked soil. Besides, with the Sedum there is no danger of low-growing Hyacinths becoming splashed with soil from heavy rains.—E. M.

— **FLOWERS ON MRS. SMEE'S GRAVE.**—Mr. G. W. Cummins has shown us some beautiful photographs of wreaths and other floral emblems taken in the churchyard at Beddington. The display was remarkably profuse, and the flowers of a choice nature. An arching spike of Cymbidium Lowianum deserves special notice. It was cut and placed in Mrs. Smee's room a fortnight before she died; it was then exposed on the grave night and day under bright sun and chilly nights for a fortnight, the stem not in water, but made to form an arch over a handsome wreath. It was then taken in and placed in water, and is still fresh—a remarkable instance of floral persistency.

— **THE WEATHER LAST MONTH.**—April was bright with scarcely any frost, and a drier month than usual. The wind was in a northerly direction fourteen days, and in a southerly direction fourteen days. The total rainfall was 1.68 inch, which fell on sixteen days, the greatest daily fall being 0.41 inch on the 25th. Barometer—highest reading, 30.194 at 9 A.M. on 12th; lowest, 29.018 at 9 P.M. on 6th. Thermometer—highest in the shade, 64° on 21st, 24th, 29th, and 30th; lowest, 27° on the 13th. Mean of daily maxima, 55.30°; mean of daily minima, 38.33°. Mean temperature of the month, 46.81°. Lowest on the grass, 21° on the 13th; highest in the sun, 144° on the 24th. Mean temperature of the earth at 3 feet in depth, 43.56°. Total sunshine, 159 hours 35 minutes. There was one sunless day.—W. H. DIVERS, *Belvoir Castle Gardens, Grantham*.

— **DEATH OF MR. WALKER OF THAME.**—By the death of this well known horticulturist the gardening world has lost, not only one of its most prominent members, but one of that band of quiet workers who, without blowing their own trumpets, have tended so much to advance the interests of horticulture. Mr. Walker was one of those who devoted himself to florists' flowers, and at the metropolitan exhibitions his collections of Tulips, Dahlias, and Roses showed with what intelligence and skill he carried out their culture; but I believe that he will be best remembered by the magnificent boxes of Maréchal Niel which he exhibited at the metropolitan spring shows, their large size and magnificent colouring always elicited the praise and admiration of all visitors to the shows. Mr. Walker was a man of very quiet and unassuming manners, but his work was recognised by a large circle of acquaintances who will greatly mourn his loss. Mr. Walker died from an attack of apoplexy on the 8th inst. He was sixty-four years of age.—D., *Deal*.

— **DEVON AND EXETER GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.**—The Committee has fixed the fourth Wednesday in July (24th) as the date of the summer outing for the year, and by permission of the Right Hon. Lord Poltimore, Sir W. H. Walrond, Bart., M.P., and Sir J. H. Amory, Bart., the members will be enabled to visit Poltimore Park, Bradfield, and Knightshayes, all of which places are noted for the horticultural interest they possess. The following is the programme as arranged:—To meet at Bedford Circus at eight o'clock, and proceed in four-horse brakes, *via* Whipton and Pinhoe, to Poltimore. Passing through the gardens and pleasure grounds, the party will rejoin the brakes and proceed to Bradfield. After a halt of about two hours or so there, inspecting the gardens and grounds, the journey will be resumed for Knightshayes. After a short stay at Knightshayes, Mr. Moyle's, Angel Hotel, Tiverton, will be reached, where a substantial tea will be provided at five o'clock. The return journey will be made from Tiverton for Exeter direct, *via* Exe Valley, leaving the Angel at seven o'clock.

— WE learn that the presentation of the Veitch medals will be made at the meeting of the Royal Horticultural Society on Tuesday, June 11th, at 3 P.M., by the President, Sir Trevor Lawrence, Bart.

— THE Directors of the New York Institution for the Instruction of the Deaf and Dumb have in contemplation the education of the inmates in horticulture: The experiment will be watched with great interest.

— VIOLA AND PANSY CONFERENCE.—We understand that, as previously suggested, a Conference of Viola and Pansy growers will be held on the 29th inst., in connection with the show of these flowers to be held in the Botanical Gardens, Edgbaston, Birmingham, on that date.

— FLORAL NOMENCLATURE.—The practice of naming flowers after eminent public characters occasionally leads to the display of a certain amount of unconscious humour. Thus in an illustrated manual for the garden and farm, published by a firm of seed merchants in Adelaide, South Australia, under the heading of *Chrysanthemums* was the following:—"W. E. Gladstone, a showy and effective variety, crimson and violet, brilliant but erratic."

— FRUIT PROSPECTS IN MONMOUTH.—In this district prospects of a heavy crop of fruit are very promising. Apples, Plums, and in fact fruit trees of all kinds are laden with blossom, and the heavily bloomed orchards give the country a pleasing appearance. Pear trees have all been full of flower, which, however, fell earlier than is usual. With bush fruits and Strawberries it is the same, and if no check follows an abundant supply is expected to be the result.—J. H.

— CEYLON TEA AND COFFEE.—The exports of these products in 1893 show a marked increase in the output from that flourishing colony over the preceding year. The Governor's report for 1893 is most interesting, and shows that the "Paddy tax," a direct tax on the food of the people, was removed that year; public works were instituted and largely carried out, and trade increased generally. Of Coffee 55,423 cwts. were exported in 1893, as against 43,338 cwts. in the previous year; while 82,269,353 lbs. of Tea were exported in 1893, as against 72,279,985 lbs. in 1892.

— THE WEATHER AND THE CROPS IN GUERNSEY. — Since reporting to you last we have had a fortnight of very brilliant weather, which has brought on produce of every kind, indoors and out, at an amazing pace, so that we are (much sooner than was expected) within measurable distance of the full Tomato season. Already a fair number of small parcels are being shipped, and every day henceforward will see a substantial increase in these. So far fair prices have been realised for these in England. French Beans and early Peas have also done fairly well, but the second sowing of Radishes came in too late to realise anything like a paying return. Flowers also to some extent are becoming too numerous to pay the senders, excepting it is something of a special nature. Potato digging (in the more sheltered situations) will commence as soon as this month is out. Very few forest trees, excepting the Horse Chestnuts, are yet in leaf. There is plenty of grass in the meadows and pastures; corn also, what little there is grown, is looking very well. Fruit prospects are fairly good.—X.

— INSECTS ON FRUIT TREES.—These form the subject of a leaflet issued by the Board of Agriculture. Apple, Plum, and Damson trees, it is reported, are being specially attacked by caterpillars of several species of moths, chiefly the winter moth. The latter at first are greyish, with black heads, and so small as to escape notice unless attention is specially directed to them; in their later stages the caterpillars are green, or yellowish green, with whitish stripes and brown heads, and nearly three-quarters of an inch long. Syringing the trees with certain mixtures are recommended, particularly in respect of Plum, Damson, and small Apple trees, and fruit bushes. Fruit growers may be interested to know that the mixtures specified by the Board of Agriculture are as follows:—1, The extract of 7 lbs. of quassia, obtained by boiling quassia in water, to 100 gallons of water with 5 lbs. of softsoap. 2, The extract of 5 lbs. of quassia to 100 gallons of water, with 5 lbs. of softsoap and 5 pints of petroleum, well stirred. 3, The extract of 4 lbs. of quassia to 100 gallons of water, with 4 lbs. of softsoap and 4 pints of Calvert's carbolic acid, No. 5. 4, Six lbs. of softsoap and 2 lbs. of finely ground hellebore, and a quart of petroleum, boiled and well stirred together. This is sufficient for 100 gallons of water. Those who desire to have fuller particulars can obtain copies of the leaflet free of charge and post free on application to the Secretary, Board of Agriculture, 4, Whitehall Place, London, S.W.

— THE PASQUE ANEMONE.—I see Mr. Arnott has pointed out a singular typographical error in my article, about which I was about to write you. The "black grub," asked about on same page (403), I presume is the larva of some moth, probably a noctua.—J. R. S. CLIFFORD.

— FRUIT PROSPECTS IN FRANCE.—The orchards in the districts round Paris now present a mass of bloom such as has seldom been witnessed. Pear, Cherry, and Apple trees are alike loaded with blossom. The season is unusually late, but there is every prospect of a splendid crop providing the weather continues favourable.

— ASPARAGUS IN THE VALE OF EVESHAM.—The past few days of hot weather has caused the Asparagus grown in the Vale of Evesham to come on at an enormous rate. It is hardly possible to keep it cut before becoming run. The increase has caused prices to fall low. On Thursday last, 9th inst., 8s. per bundle (120 heads) was the average price realised in the local auction market. It is computed that 300 more acres have come in for cutting this year in this neighbourhood.—ALFRED G. GROVE.

— A GOOD WINTER LETTUCE.—I send for your inspection a sample of Sutton's Winter White Cos Lettuce, which has been grown out of doors without the slightest protection. I had about 300 plants pricked in a small border during the latter part of September, and they have nearly all stood the very severe winter. I am now able to cut splendid Lettuces, like the one enclosed.—SYDNEY J. CHALK. [It is very fine indeed, resembling an excellent specimen of the Paris Cos.]

— FLOORS CASTLE. — I think your Belgian correspondent (page 403) has somewhat misapprehended the meaning of the incidental passage in my article on Floors Castle, its gardens and romantic environments, to which he refers. I did not say anything intended to indicate that its modern name of Floors signified "flowers." It was the ancient title of the castle (Fleurs) which I interpreted thus, as he will find by referring again to my contribution. The older, and as I think more beautiful, name appears in the "Gazetteer of Scotland" for 1842, which I have beside me here. I do not doubt, however, that your correspondent's interpretation of the modern name of the Duke of Roxburghe's palatial residence is absolutely correct. I am glad that he appreciated my article.—DAVID R. WILLIAMSON.

— SUMMARY OF APRIL METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS. — Mean temperature of the month, 47.3°. Maximum on the 23rd, 65.4°; minimum on the 13th, 26.7°. Maximum in the sun on the 10th, 121°; minimum on the grass on the 8th, 18°. Mean temperature of the air at 9 A.M., 47.9°. Mean temperature of the soil 1 foot deep, 46.2°. Nights below 32°, in the shade, six; on the grass, fourteen. Sunshine, total duration in the month, 140 hours, or 34 per cent. of the possible duration. We had three sunless days. Total rainfall, 2.18 inches. Rain fell on ten days. Approximate averages for April:—Mean temperature, 45.4°; sunshine, 123 hours; rainfall, 1.65. A fine and mild month, with warm days, but no very hot ones. Rather more rain than usual, but it fell on a small number of days. Vegetation is making fair progress. Fruit blossom of all kinds very abundant, except Apricots, which are thin. Queen wasps are very numerous this year. Alpine and herbaceous plants do not appear to have taken any harm during the last severe winter, as they are growing and blooming very strong and bright.—J. MALLENDER.

— NEW SOUTH WALES FLOWERING PLANTS AND FERNS.—We have received from the publisher, Mr. Chas. Potter, Government Printer, Phillip Street, Sydney, part I. of a work from the pens of Messrs. J. H. Maiden, F.L.S., and W. S. Campbell, F.L.S., entitled, "The Flowering Plants and Ferns of New South Wales." The introduction says, "As far as possible, each part will contain illustrations and descriptions of two forest trees (consequently of economic value), and of two flowering shrubs or smaller plants selected without any utilitarian considerations, but because of the beauty or scientific interest of their flowers or foliage." Such a work, well produced as is the copy before us, should prove of great use to botanists and others all over the world. Part I. contains admirably executed coloured plates of *Telopea speciosissima* (the Waratah), *Eucalyptus corymbosa* (the Bloodwood), *Actinotus Helianthi* (the Flannel Flower), and *Acacia glaucescens* (the Coast Myall). Accompanying each plate are several interesting particulars regarding origin of nomenclature and uses of the plants. The price of the part is 2s. 6d. each to subscribers, or 3s. 6d. to non-subscribers. Particulars may be had from the publisher.

— GARDENING APPOINTMENTS.—Mr. J. King, for the last nine years general foreman at Bryanston Gardens, has been appointed head gardener to H. J. G. Lloyd, Esq., Itchell Manor, Crondall, Hants. Mr. James Dymock, late foreman in The Gardens, Devonhurst, Chiswick, has been appointed head gardener to B. Wentworth Vernon, Esq., Stoke Bruerne Park, Towcester.

— NOXIOUS GASES AND VEGETATION.—We understand that an action brought by Messrs. Pennell & Son against the Lincoln Brick Company for damage to young trees in their nursery at Low Fields, Bracebridge, by the emission of sulphurous fumes from the Company's adjacent works, and which action was postponed from the last Assizes, has been amicably settled, the Company agreeing to pay the sum of £100 to Messrs. Pennell & Son.

— EUCALYPTUS AMYGDALINA.—A Melbourne contemporary states:—"Victoria now claims the glory of holding the biggest of all the living big trees in the world, so far as height is concerned. In the Dandenong district, at Fernshaw, has recently been discovered a specimen of Eucalyptus amygdalina, which reaches the enormous height of 380 feet before throwing out a single branch, and is 430 feet to the top, having a girth of 60 feet at some distance above the ground. Some idea of what a height of 430 feet represents may be gained from the fact that this Gum Tree, if growing by the side of the Houses of Parliament, at Westminster, would overtop the clock tower by exactly 100 feet."

— WAKEFIELD PAXTON SOCIETY.—Ald. Milnes presided, and Mr. J. G. Brown, of Outwood, occupied the vice-chair, at a meeting of this Society, held on the 4th inst. There was an unusually good attendance, and an exceedingly interesting meeting. Mr. T. Pitts, gardener to Mr. D. B. Kendall, J.P., of Thornhill House, Walton, delivered a capital lecture on "Spring Bedding Plants," in which he gave much valuable advice, based on practical experience, with reference to the best varieties of plants for spring bedding. The lecture, which was delivered in a pleasant chatty style, was attentively listened to, and apparently much appreciated, and it provoked one of the longest and best discussions which has taken place at the Society for some time past. Both professional and amateur gardeners took part in the discussion, and put numerous questions to Mr. Pitts, who promptly and fully replied to them. The discussion had reference to the growth of most of the spring favourites, but it drifted mainly to the popular Wallflower, and it appeared that many growers of the sweet and old-fashioned flower had lost large numbers of plants by the strong winds and very severe frost of the past winter. The Auricula, Polyanthus, Primrose, Forget-me-not, and white Arabis were strongly recommended, one speaker saying that nothing looked better in spring than a bed of white Arabis mingled with scarlet Duc Van Thol Tulips. Many other kinds of pretty and sweet flowers, which can be grown at little cost and trouble and without glass, and are most accommodating, were also recommended. A vote of thanks was accorded to Mr. Pitts for his lecture.

— POTATO TRIALS IN SURREY.—Those of our readers who may be interested in Potato trials as object lessons for the people will find a fuller account than can be given here of what is this season being done in Surrey if they will turn to the pages of our contemporary, "Garden-Work." These trials form but other evidence, if such be needed, of the strong sympathy with gardening as a rural vocation that animates the Technical Education Committee of the Surrey County Council. They have, so far, been conducted by Mr. A. Dean, who has planted every tuber of the seventy-three varieties obtained, and in various parts of the county. Altogether some 130 rods of ground have been planted, the earliest planting being at Mitcham on April 19th, when ten rods of land, sandy, clayey, and boggy each, were got in. Later, in the same district, at Brandon Hill, other ten rods on chalk were planted, and in all cases with the same varieties and from the same sources. Other land was planted at Richmond; two plots, one for varieties and one for manure trials; at Chertsey on stiff land; at Milford on sand; at Woking on sandy bog; at Dorking on a chalky marl; and last of all, so late as May 11th, because unavoidably deferred, at Englefield Green on a very sandy soil, yet fairly good and holding. In some cases the land had been dressed with animal manure, in other cases superphosphate, kainit, and nitrate of soda in equal parts were given along the furrows after planting. It is hoped that as most of the trials adjoin allotment groups they will excite considerable interest, and thus enable the workers to see varieties hitherto to them unknown, and, no doubt, in many cases great improvements on older varieties.

— BAMBOO CULTURE.—A Charleston, North Carolina, correspondent believes that the Bamboo could be successfully and profitably grown on the abandoned Rice fields of that region. By growing our own umbrella handles we should have no question as to whether Bamboo was wood or grass.

— LARGE PUMPKINS.—Three enormous Pumpkins (says the "Australian"), weighing in the aggregate 392 lbs., have been exhibited at the door of a seedsman in Melbourne. They were grown in the neighbourhood, and the heaviest one, weighing 1 cwt. 12 lbs., was of the large yellow variety, the other two specimens being of the ironbark kind.

— CARROTS AND SULPHUR.—My experience with the above, both when sowing and sprinkling the surface at various times after, has never been successful in preventing the flies depositing eggs and their subsequent maggots. Once I was in high spirits when the Carrot tops remained healthy until a week before the Carrots were ready for drawing, when, lo! they collapsed suddenly before I had one good root.—W. T.

— THE COMPENSATION IN NATURE.—It has been noted that where the summer season is comparatively short, and the winter season long, Nature starts the earlier flowering plants in the most surprising way, and on the other hand runs the autumn flowers far into the winter season. In Siberia, says a transatlantic contemporary, a large number of plants will resist early frost, and continue to bloom for a considerable time after the temperature has fallen below freezing point. One of the most beautiful and gorgeous of these is the Aster tataricus—a plant growing some 3 feet in height, and bearing an immense profusion of bright purple flowers. In the writer's garden it made a great show, even up to the 1st of November. The same may be said of the Maximilian Sunflower, a native of the north-western part of our territory, which was also gaily in bloom with the Aster tataricus. A selection of these late flowering plants, grouped in a distinguished manner in some large public garden, would attract a multitude of interested visitors.

— THE ASH AND THE OAK.—It is gratifying to find, so far as my experience has gone, that no one has, in referring to the probable nature of the coming summer, introduced the old and stupid adage respecting these trees. As there are few of these forest trees that are not raised from seed we may find in them all great variation, and as much perhaps in the Ash, usually the latest of all trees to expand leaf buds, as in any others. I have this year seen the Horse Chestnut on precocious forms literally in full bloom, and Ash trees near with not a burst bud on them. That fact serves to show how glorious a tree for early foliage is the Horse Chestnut. Probably not more than usual, except that so far the spring has been free from fierce wind storms; but somehow the foliage of trees seems never to have been more beautiful than this year, or the varying tints of green more charming. Still, this appreciation is probably most due to the fact that spring is with us the opening of a fresh scene in leafage. How great is our gain over that of a country of perennial foliage.—D.

— THE LATE MR. MACDONALD.—I received the other day from my friend Miss Woodhead the sad news of the death of her honest and excellent gardener, Mr. MacDonald of Norwood Green, Hipperholme. He was but little known in the horticultural world, and probably none of the horticulturists in the South was aware of his existence, and yet he had under his care one of the best collections of Auriculas in the North of England. When, after the death of her excellent brother, Miss Woodhead removed to her present abode, now thirteen years ago, she placed her extensive collection under Mr. MacDonald's care, and well and faithfully did he carry out the task allotted to him. Some years ago I made a pilgrimage to Norwood Green, and had the opportunity of seeing both the collection of Auriculas then out of bloom, and also of having a good talk with Mr. MacDonald. I gave an account of my visit at that time in the pages of the Journal, and have very little to add to what I then stated. Not only the Auriculas, but the greenhouse and out of door gardening were well managed. Mr. MacDonald—a modest unassuming man—seemed just the sort of person suited for the place, and enjoyed the complete confidence of his kind and sympathetic mistress. He died on April 29th, and was interred on May 3rd, exactly thirteen years after Mr. Woodhead—a somewhat singular coincidence. He was in his sixty-fourth year, and was hale and vigorous when I saw him. He will be a great loss to Miss Woodhead, who will find a difficulty in replacing so valuable a servant.—D., Deal.

— THE AGRICULTURAL RESOURCES OF RUSSIA.—M. Bataline, Director of St. Petersburg Botanic Gardens, in a recently issued report, gives some idea of the immense undeveloped agricultural resources of Russia. He states that in the Caucasus, along the shore of the Black Sea, is a wide area of land more fertile than any other in Russia, and where Grapes, Olives, and other fruits, tea, and corn would flourish. The vegetation is rich, but hardly any attempt has been made to cultivate this fertile country since the Russian conquest of the Caucasus in 1864. With the exception of two villages, where are some large gardens, there is little sign of cultivation in a province where thirty years ago were broad cornfields, extensive orchards, and a flourishing people.

— BEES PUNCTURING FLOWERS.—Bees puncture many other flowers than Beans. Aquilegias are mutilated by them. I am much obliged for the reply given by Mr. W. Cuthbertson (page 404), but scarcely fall in with him that the shaking of the blossom by the bees aids in fertilising the Bean. It was the general opinion at one time that the humble bee punctured the base of the blossoms for the sole benefit of *Apis mellifica*. I turned my attention to that, wondering why comparatively few humble bees could get over so much work, and why they did not appropriate the honey instead of labouring for other bees. I soon made the discovery the honey bees did the puncturing for their own benefit as well as a small beetle. I cannot say when the bees puncture or enter the blossoms in search for honey, but it is reasonable to suppose that they puncture only when the honey is scarce. Beans secrete much honey at the base of the leaves, which the bees gather readily. If honey and blossoms are the attractions for insects to assist fertilisation, what then is the use of the honey at the axils of the leaves?—OBSERVER.

— MAY WEATHER.—Last week was one of the sunniest that has ever been experienced in these islands. Over a very large portion of Great Britain the aggregate duration of bright sunshine amounted to between seventy and eighty hours, giving a mean daily proportion of ten to eleven hours. At Cambridge the total duration for the week was as much as eighty-eight hours, or rather more than twice the ordinary average. Even at Westminster, where the operation of the sunshine recorder is too often interfered with by mists or smoke, the total duration last week was no less than eighty hours, or 75 per cent. of the possible amount. So large a proportion for a whole week has only been registered once in London in the course of the past fifteen years. That was in the second week of May, 1893, when the proportion of the possible amount of sunshine in London was 1 per cent. higher than in the past week. With this exception the proportion has never exceeded 70 per cent., and in eight years out of the past fifteen it has not once exceeded 65 per cent. The presence of so much bright sunshine last week resulted, very naturally, in high day temperatures, the maximum readings over the inland parts of Great Britain being frequently above 70°, and in some few instances above 75°. In London the thermometer in the shade rose to 70° and upwards on four days out of the seven, while on Thursday last it reached 76°. The latter point was, however, eclipsed on Sunday, when, in spite of a rather cloudy sky, the shade temperature rose to 79°, or 17° above the average for May, and 7° above the average for July or August. Out of the past twenty-five years there have been only six in which the temperature in London during the month of May has risen so high. The highest May temperature registered in London during the past quarter of a century occurred on the 26th of the month in 1880, when the thermometer rose to 86°. Such a temperature as was recorded in the heart of the City at one o'clock on Monday morning (65°) has not been experienced thus early in the month for years. Indeed, since 1891 the only instance of the thermometer touching that point at midnight in May was on the 28th of the month in the spring of 1892. Taking the whole of last summer the thermometer only thrice stood as high in the early hours of the morning, and those three occasions were all in the month of July.—(“Daily News.”)

THE R.H.S. EXAMINATION.

I TRUST we shall learn through the columns of the *Journal of Horticulture*, and from many sources, now that you have published questions set at the recent examination, what is generally thought of them as a test of practical and theoretical knowledge in gardening. It would be absurd to say of any of them that they were abstruse or difficult. So far as I can see in them they are such as any intelligent gardener might have answered with comparative ease, whilst some amateurs would not find them exceedingly difficult.

Probably there are many who have ere now read the questions, who, shrinking at the time, now think they were very foolish not to have sat

for the examination. I cannot conceive of young men who have their way to make in the calling who would not be eager to seize the opportunity to sit, because if no pecuniary good eventually resulted, and I think that could hardly be the case when a young gardener did well, still undergoing the ordeal of an examination would be productive of great good, and must render the candidate more fully conversant with much in gardening that perhaps hitherto he has not studied or even practised.

One very estimable gardener, a man of mature years, whose work I had previously seen, and whom I was anxious should sit, told me that he was specially desired in another direction not to do so, because some less experienced men would to some extent regard him as a competitor, and thus damp their energies. In any case he did not sit. Another gardener, who had previously done first-class paper work, seems to have refrained from sitting because the nearest centre was so far from his residence. In that case only one candidate (a schoolmaster) sat; but I think, from what I know of him, that he will not have done badly.

Talking to an esteemed gardener in Surrey the other day, he remarked, “I wonder that head gardeners, where they have two or three or more young men under them, do not both specially encourage these youths not only to attend horticultural lectures, but also to sit for the R.H.S. examination.” In that view I fully concur. I do not say, of course, any compulsion should be exercised, but moral suasion should be employed to those ends. Young men may not find in gardening that perfect or highly paid vocation they wish, but at least they are extremely foolish, once they are right into it, not to try and make the very best of it that offers. Their ages range from twenty to thirty years, perhaps, and yet there is not in the kingdom an intelligent gardener three times the age who will not admit that all there is to know in gardening has never been acquired. It does therefore seem to be folly to neglect the aids which to-day furnishes, whether in books, lectures, classes, examinations, or in whatsoever way found.

I have found numbers of cases in which old and experienced men have admitted how much they have learned through lectures, even if little in mere work at least much in theory, and in opening up new veins of thought and aspect. To such men as these lectures are sources of real enjoyment as well as of improvement. The stubborn man, who encases himself as it were in armoury of cold disdain, and offensive egotism, will neither attend lectures nor learn from any source. He is a fool unto himself, for no persons are so mentally blind as those who will not see.

That is a sort of feeling that may come of age, but should never be a characteristic of the young man. If he is wise he will try hard to obtain useful knowledge from any source, for he never can tell when he may find it useful. How often is it he who has a chance to drop into some better position finds that lack of knowledge heavily handicaps him, and loses for him the post to which he aspired. All this is too true, and much to be deplored.

Would that we could get head gardeners everywhere to interest themselves much more actively in connection with this annual R.H.S. examination, and try to induce their young men to become candidates. The number of these should be ten times as many as are now presented. The examination is of course open to all, but it is essentially a gardener's examination all the same. It is therefore all the more a matter for regret that as such it is not far more widely utilised.—A. D.

EARWIGS FLYING.

ALTHOUGH I willingly reply to “W. R. Raillem's” request on page 408, I feel bound to say that I do not see the object of his remarks.

That in surrounding Chrysanthemum plants by water earwigs are practically precluded from attacking the plants is an undoubted fact experienced by those who pursue this course. Whether they suffer from hydrophobia, or are too indolent to use their wings, I am unable to say, but that they rarely get on to my plants while so protected is sufficient for my purpose; but “W. R. Raillem” must not assume I state that they do not fly upwards, as all I say is “there need be little fear.” But after all, whether they fly at all matters little to me, unless they would all fly to the south-west of England. Unfortunately these insects account for an hour or more of my time every night from May to November, which is doubtless funny to “W. R. Raillem,” and I have thought that I have seen thousands make use of their wings in the manner described by me, but I would tell your correspondent that I have the greatest dislike to touching these insects with my hands, and always use forceps, and that I have never seen them open their wings in the daytime, although I assume the night is referred to.

As to “W. R. Raillem's” inquiry, “Will ‘Entomologist’ be kind enough to say whether an earwig can fly over an inch or two of water, or as high as the leaves of a Chrysanthemum plant?” Why not. I only speak of its customary habits.

Perhaps I may remind “W. R. Raillem” that our old “barndoor” has also a “splendid pair of wings,” and although there are two or three of us who have done the funniest thing that he has heard of for a long time, I do not think that need surprise him, nor myself, inasmuch as the funniest part of it all is that the “Earwig Baffler” is not mine, but that of some other funny person (see page 341).

And, lastly, as to the libel on the poor cuckoo, why I heard a girl once say, “Oh, mamma, I heard the cuckoo this morning, it went pe-wet, pe-wet.” Libels on birds or animals are not, however, infrequent, as I bear in mind the reply of the man who received a kick from a donkey and said that he took it from whence it came.—H. BRISCOE-IRONSIDE, *Burgess Hill*.



ROSE MARÉCHAL NIEL.

I FAIL to see why "W. R. Raillem" (page 406) should be so much surprised at my recommending gardeners to increase their stock of this fine Rose by grafting, as the plants produced by this means are in no way inferior to budded or own-root plants for forcing. The only difference is that by grafting we can propagate quicker than in any other way, and this was my reason for advising it. There is no need to keep the plants in pots; they may be so grown or planted out according to requirements. If a clean healthy growth is made, and this well ripened, flowers in abundance will be produced, and there is no reason why grafted plants should not succeed if trained on the lines laid down by "W. R. Raillem."—H. R. R.

IN an old lean-to greenhouse owned by Mr. White, Havant, is growing a very fine plant of Maréchal Niel. The blooms do not exhibit that rich colouring so much admired in this Rose, but they possess much substance of petal, and are extremely useful to Mr. White in his business as a florist. The plant was budded on to a Gloire de Dijon growing on its own roots, having been raised from a cutting.—E.

ROSE LA FRANCE.

THE engraving (page 407) faithfully represents this charming Rose as seen at its best. For growing in 4-inch pots to give one, and sometimes two, blooms on each a year old, it is a capital variety. Cuttings 4 inches long taken in May from plants that flowered in April root readily inserted in sandy soil and plunged in a gentle hotbed. Shade must be provided until roots are formed, or callusing will be retarded. If the cuttings are inserted several in one pot they will require potting separately when well rooted, and should go direct into the sized pot named. Grown steadily in a cold frame for a time, afterwards giving them a sunny spot out of doors for the remainder of the autumn to mature the growth, these plants will produce excellent blooms during April and May.—M.

ROSE MRS. W. J. GRANT.

I AM glad to note "W. R. Raillem's" vigorous protest against the renaming of this fine Rose, and also to find that protest supported by your editorial note. I have already expressed in your columns my determination to show and recognise it only under the name originally given to it, and I earnestly hope that all members of the N.R.S. at least will do the same.

Some to whom I have spoken on the subject say, "Oh, but if a man buys the entire stock of a new Rose, surely he may call it what he likes?" The reply to this is that it depends on the circumstances of the case. If a selection is made from a number of unnamed and unexhibited seedlings the purchaser may certainly do as he likes, but that was not the case with this Rose. The raisers had, I suppose, obtained permission to name it after the wife of one of the ablest rosarians this country has known; they had exhibited it under this name throughout an entire season, and under this name it had received many F.C.C.'s, and the highest honour a new Rose can obtain—viz., the gold medal of the N.R.S.

Under these circumstances I submit that the purchaser had no right to ignore everything that had gone before, and to attach the name of his daughter to the Rose. His doing so appears to me, unintentionally, no doubt, to be a direct affront to the raisers, to the lady whose name the Rose properly bears, and to the N.R.S., whose medal it has received, and I am sorry to find from the report of the latter just to hand that they think so little of their own awards as to recognise the new title in the list printed on page 72, and to print the legitimate name as a secondary matter.

I should like to ask, Is the Rose, which, as "Mrs. W. J. Grant," received the gold medal eligible to compete for another medal under a fresh name? If not, why is that new name officially recognised by the Society?—J. B.

[We repeat that the name under which the variety was honoured as described is the true name of the Rose. It is the name first recognised and recorded, and according to established rule it ought to prevail.]

A QUIET CORNER.

LIFE in general, particularly to those engaged in its more active pursuits, now and again brings the desire to escape from it—to stand aside as it were for a brief space, and in quiet meditation review the passing procession in all its kaleidoscopic changes. This privilege is enjoyed according to individual views of life, and according to the standpoint from which it is viewed, whether from congenial or uncongenial surroundings. To those patrons of the art of gardening who seek, and invariably find in it, those soothing influences which make life worth

living, gardeners are especially privileged to contribute in no small degree. Apart from cultural skill, prudent management, and the items conducive of a successful exposition of his profession, a man's inventive faculties are afforded ample scope in the field of his work to enlarge the gratification derived from it.

Such passing thoughts, pertaining rather to the philosophic than the practical, may be admissible, for the pleasures of gardening are not yet eclipsed by the search for profit, nor will they probably ever be so, as the benefits derived from this form of relaxation are heavy on the credit side of the balance-sheet. Coming to the more practical side of the question there are but few gardens which do not give facility, either indoors or out, for the further exercise of that "Art which doth aid Nature." The garden is a place of many corners, quiet corners too, yet not so according to the interpretation the text is capable of, that is, suggestive of repose sought for through the medium of graceful and appropriate surroundings.

Apart from these considerations there are reasons worthy of this subject receiving some attention from those who find the architect and builder of some plant house or conservatory has left his—the gardener's—views entirely out of the question. How often is to be found in some conservatory attached to a dwelling house everything desirable, save the one important matter, that of providing a healthy home for plants. Many find this a never-ending source of trouble in keeping up those appearances it is here of all places so necessary to maintain. Details of such are too well known to encroach on space. Houses in which the most able cultivators fail to do justice to themselves, and are unable to give satisfaction to their critics. Yet, it is often possible at a small expense, with taste and ingenuity, for the gardener to convert his *bête noir* into a thing of beauty with a considerable lessening of the strain imposed on him hitherto.

Miss Armstrong's picture (fig. 72) is an illustration to the point in question, for such work obviously is suited to any house or corridor which may be termed ugly by reason of an obtrusive end or back wall. This illustration, speaking for itself, requires no explanation; but, if I may be permitted to say so, would more vividly impress the beautiful, as here seen, if the unlovely—of which so many examples are frequently to be met with—could be here depicted in the same practical manner. Nothing so forcibly impresses the pleasing as the want of it, and he who has to stand the fire of criticism aligned through the drawing-room windows into the conservatory knows well where the shoe pinches.

At first sight, with some conservatories (alluding here to those attached to a building), difficulties may present themselves in altering existing things. For instance, it may be thought desirable that damp soil or rockwork should not come in contact with the walls of the dwelling. With such difficulties I have had to deal with in the conversion—from my point of view—of an ugly conservatory into a quiet corner which is now generally admired by those more competent to judge than myself. It is not, I admit, an altogether worthy object in seeking to avoid trouble, but when that is of the perennial kind and can be abolished for good and all, then with that object alone it is desirable to do so. Trouble in this case meant work, a never ending endeavour to keep a house presentable with plants which was able to reduce the majority of them to a pitiable state in the shortest time.

With a side wall next a reception room it was thought well to avoid the possibility of damp, hence the rockwork was built up independently with an intervening space. A water tap at hand suggested a fountain, and to this end a portable tank was utilised, and stood on the floor at the base of the rockwork wall and finally enclosed in the same material, thus making it a part and parcel of the principal erection. A junction with the waterpipe carries water to the top of the wall, whence it trickles or dashes down according to desire into the basin below, keeping it full, and escaping by an overflow over the marginal rockwork to an unseen drain.

Seedling Ferns, Lycopodium, Begonias of the Rex type, with Ficus repens and Tradescantias, for which ample provision was made for planting, fairly revel under these conditions, and a fine Dicksonia—which hitherto had appeared to exist only on sufferance—now crowns the whole with a luxuriant canopy of fronds. So with some large Palms and other permanent plants, which soon showed the beneficent effects of the presence of water and moisture-yielding rockwork. It is not always desirable to let well alone, if the way is presented to do better and further improvement was made by abolishing all pots, transferring the specimen plants into tubs and covering these with virgin cork. Other corners in the same house were similarly treated, and where stone could not be employed virgin cork gave means to the end.

Similar work to suit varying conditions needs not to be carried out on any hard and fast lines. Some idea of the floor space available for the foundation of it is necessary to have, then as the work proceeds it will be found self-suggestive. The builder may certainly, probably will, transgress in the ethics of expert rockwork building, in fact my work prior to completion provided the text for a sermon by an interested friend on strata, but Ferns and creepers have long since veiled those imperfections from inquisitive eyes. A few baskets of that charming pendent Fern, *Gymnogramma schizophylla gloriosa*, show to advantage above, and an old iron garden seat, bereft of a leg, is permanently

bolstered up in a quiet corner with more rockwork, and backed up with cork, to the benefit of those seeking quiet moments.

The expense of this conversion was practically confined to the cost of half a ton of Portland cement, and the work was done at intervals

is that the water from syringing can percolate from summit to base, thus preventing the pockets being waterlogged.

The quiet corner illustrated must serve as an excuse for this solo on that unpleasant instrument, one's own trumpet, yet it may call the



FIG. 72.—A QUIET CORNER.

during the absence of the family. This is mentioned, as probably more hurried building would have been less satisfactory. On some days not more than five or six pieces of stones were fixed, and to attach some pieces to advantage it was found necessary to secure them in position until the cement had hardened. Another point should be mentioned

attention of some in a similar predicament. Some perhaps whose thoughts when noting it will revert to "that confounded conservatory which kills the plants," or "that ugly corner in the plant house." Should it do so, I respectfully suggest "Go thou and do likewise."—FREEMASON.



JAPANESE NOMENCLATURE.

UNTIL the present year floral hero worship was entirely unknown to the native Japanese grower of Chrysanthemums. He almost always selected poetical or fanciful names for his plants, such as Cherry on the Peak, Moon in Frosty Night, Snow on Pine, Sea of Setting Sun, Cascade of Thousand Fathoms, Moon in the Window, A Thousand Sparks, Eye of a Snake, and the like; but taking the cue from western florists, I observe that one Japanese grower, probably as a compliment to some of his victorious countrymen in the recent struggle between China and Japan, has adopted the following for his novelties of 1895:—Admiral Ito, Count Yamagata, General Nodzu, and Marshal Oyama.

ITALIAN CHRYSANTHEMUMS.

A Chrysanthemum fancier in the States inquires of me in a letter just to hand for the names of some German and Italian authorities on the popular flower. Although there have been shows in Germany I have never heard of any horticulturist who has a special claim to be considered an authority; but perhaps some of your readers who have more to do with that country than I can help with the desired information. With respect to Italy there are three raisers who have sent out some seedlings, and most of these have been imported into England; but when autumn has arrived, and inquiry has been made for the Italian novelties at our trade growers, the results have been by no means promising, and I doubt whether half a dozen could be found in the hands of our English growers.

THE OLDEST CHRYSANTHEMUM.

Everybody knows that the first large flowering Chrysanthemum was called the Old Purple, and was introduced from China into Europe in 1789, and was figured in the "Botanical Magazine," plate 327, in 1796. Having recently purchased an old French book in four volumes, entitled "Elémens de Botanique," I naturally turned up the index for Chrysanthemums.

I found a coloured plate of a variety that does not resemble the one in the "Botanical Magazine," as it represents a small dull red flower of the single type with a yellow centre, about 2 inches in diameter. It is called Chrysanthème d'Automne, but no varietal name is given, and by the appearance of the book and the letter-press reference to the plant as having been grown in French gardens for several years, I am inclined to think that both plates quoted are intended to depict the same flower.

None of the four volumes has any title page or date, nor does an author's name appear. Can any reader of the Journal supply me with particulars of the "Elémens de Botanique?" In size it is a small quarto.

HAIRY CHRYSANTHEMUMS.

I note what "E. M." says on page 410 about these varieties, and have never believed that they would create more than a transient feeling of interest. Some of the pure white varieties when grown in bush form, and with a large number of flowers, as I have once or twice seen them, may be very useful for filling vases for indoor decoration. *Enfant des Deux Mondes* in particular has a special value in this way. Some of the others, however, are of dirty washed-out colours that will never please the eye either of visitor to the shows or artistic decorator, and the end will no doubt be, as "E. M." says, that the whole race will find a permanent resting place on the rubbish heap.

But that event has not yet come to pass. Mr. Jones of Lewisham catalogues twenty-one kinds, nearly all of which I have seen and closely examined at one time or another, and which may certainly be pronounced as the best. The Americans who successively puffed up Mrs. Alpheus Hardy, Louis Boehmer, and several others seem to have dropped the race of hairy Chrysanthemums entirely this year. In Chrysanthemums as in many other matters this proverbially hard-headed nation rarely do much for empty honour or fame. If there are no dollars to be obtained the matter is dropped for something more remunerative.

On the continent the growers seem to delight in cataloguing all they can get hold of, and so we find in Simon Delaux's new list three series of the hirsute section, comprising a total from all sources of seventy-two different varieties.—C. H. P.

ROYAL HORTICULTURAL SOCIETY.

MAY 14TH.

THOUGH some beautiful Orchids were exhibited, also charming collections of hardy flowers, fine stands of Roses, glowing Cannas, superb Lilacs, and several Daffodils, yet Tulips undoubtedly predominated, and the designation applied by a visitor of "Tulip Day" did not appear inappropriate. Messrs. Barr & Son and Veitch & Sons had Tulips of all heights, sizes, and colours in which these flowers are seen, from the gorgeous Gesnerianas and Darwin's to the delicate Picotees and quaint Parrots; while Mr. Bennett-Poë had an excellent collection of the refined

florists' varieties, Messrs. Barr having also many in this section. It was observable that the visitors were much interested in the displays, and the great decorative value of Tulips appeared to be generally admitted.

FRUIT COMMITTEE.—Present: T. Francis Rivers, Esq. (in the chair); with Messrs. G. Bunyard, H. J. Pearson, H. Balderson, G. W. Cummins, J. Cheal, J. T. Saltmarsh, J. A. Laing, W. Bates, T. Glen, G. Wythes, F. Q. Lane, G. Reynolds, J. Smith, G. Norman, E. Gilman, J. Hudson, A. Dean, and J. Wright.

With the exception of the new *Strawberry Laxton's Leader* and sundry Cucumbers, the Committee had very little to do on the present occasion. With reference to the Strawberry mentioned, we have nothing to add to our description of it on page 411 last week, where a fruit is illustrated. It was not expected, as was there suggested, that fruits would be kept sufficiently firm for placing before the Committee; but Messrs. Laxton were out in their calculations, and for those that were exhibited a first-class certificate was unanimously awarded.

Mr. S. Mortimer, Rowledge, exhibited several fruits of a new Cucumber, also fruiting stems. The variety was named *Marvel*, presumably because of its great productiveness. The fruits are below medium size, well shaped, and of good colour. Allen's Favourite Cucumber was shown by Messrs. James Veitch & Sons—large, fine fruits. The variety has previously received an award of merit. Mr. James Vert sent very large dark green fruits of Vert's Favourite Cucumber. The Committee recommended that, if practicable, a trial of Cucumbers should be conducted at Chiswick, to include the above named and other varieties, for determining their qualities and distinctiveness under similar cultural conditions.

Mr. E. Gilman, Ingestre Gardens, sent a fruit of *May Prolific* Melon, the result of a cross between *Hero* of Lockinge and *Ritching's Perfection*; very juicy and sweet, but not sufficiently high flavoured to merit a special award. Mr. G. Wythes sent from Syon House very fine and highly coloured fruits of the *Amsden June Peach*, and a cultural commendation was unanimously granted. Mr. J. F. McLeod, Dover House Gardens, Roehampton, sent a large bundle of Asparagus, and received a vote of thanks.

The Horticultural Travelling Structures Co., Limited, exhibited a model of a span-roofed bouse on rails, which moved to and fro with great freedom. The Committee thought that a good method of testing the practical value of the plan would be to have a structure of full workable size in operation at Chiswick over Strawberries or other crops.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); and the Rev. H. H. D'Ombra, with Messrs. J. Fraser, O. Thomas, C. T. Druery, H. B. May, H. Herbst, R. Dean, J. Jennings, C. E. Pearson, J. D. Pawle, G. H. Engleheart, H. Bennett Poë, C. E. Shea, H. J. Jones, E. Beckett, C. Blick, E. Mawley, G. Paul, G. Gordon, G. Nicholson, J. W. Barr, and J. Walker.

Messrs. Tbos. S. Ware, Tottenham, staged a very showy group of plants and flowers, amongst others being thickly bloomed plants of *Spiræa japonica nana compacta*, *S. palmata*, and *S. astilboides*, *Saxifraga pyramidalis*, *Cypripedium pubescens*, *C. calceolus*, *C. acaulis*, and *C. montana*, *Ranunculus aconitifolius plenus*, *Orchis fucifolia*, *Gladiolus The Bride*, and others. Tulips were also represented in many bright and showy flowers. Several large showy plants of *Pæonies* were included in the group, as also were *Iris La Blanche*, *Chrysolora*, *Queen Victoria*, and *White Queen* (silver Flora medal).

Messrs. J. Cheal & Sons, Crawley, Sussex, staged an interesting group of hardy flowers, amongst others being *Spiræa confusa*, *Pyrus Malus floribunda*, *Pyrus Riversi*, *Mountain Ash*, *Berberis vulgaris purpurea*, *Doronicum Harper Crewe* and *D. Clusi*, *Cerasus domestica pleno*, *C. Sieboldi rosea pleno*, *Syringa persica alba*, *S. alba grandiflora*, *Azalea mollis*, together with pretty bedding *Violas Rob Roy*, *Countess of Kintore*, *Duchess of Sutherland*, *Goldfinch*, *Trentham Purple*, *Countess of Hopetown*, *Duchess of Fife*, *Blue Cloud*, and others (bronze Banksian medal).

Mr. J. Fitt, gardener to Earl Cowper, staged exceptionally fine flowers of *Lilac alba grandiflora*. Mr. George Mount, Canterbury, sent a fine collection of Rose blooms, conspicuous amongst which were *The Bride*, *Niphetos*, *Catherine Mermet*, *Duke of Edinburgh*, *Ulrich Brunner*, *Mrs. John Laing*, *La France*, *Lady Mary Fitzwilliam*, *Général Jacqueminot*, *Baroness Rothschild*, *Fisher Holmes*, and *Madame Gabriel Luizet* (silver-gilt Banksian medal). Mr. Hudson, gardener to Messrs. de Rothschild, Gunnersbury House, Acton, staged a pretty display of *Rose Turner's Crimson Rambler*, and also fine spikes of bloom of *Cercis siliqua-trum*.

Mr. A. Harding, gardener to the Marquis of Huntly, Peterborough, sent sprays of *Aucuba japonica* in fruit. Mr. A. Waterer, Woking, staged *Lilac L. Spathe*, and *L. alba grandiflora*. Mr. G. F. Wilson, Weybridge, sent a flower spike of the dwarf *Rhubarb*, *Rheum Mcorcroftianum*. F. W. Moore, Esq., Botanic Gardens, Glasnevin, sent several curiosities—namely, *Brownea Ariza*, *Acanthephippium javanicum*, *Darlingtonia californica*, *Stropanthus dichotomus*, and hybrid *Sarracenias*.

Messrs. John Laing & Sons, Forest Hill, staged a very creditable group of *Gloxinias*, interspersed with *Maidenhair Ferns* and *Palms*; conspicuous amongst the former were *Majestic*, *John Laing*, *Mrs. Laing*, *Leopard*, *Lord*, and *Killingdon*. The plants were exceedingly well grown, and the flowers fine and of good substance. Included in the exhibit were several well-flowered plants of *Streptocarpus Royal Purple*, and *Caladiums Rose Laing*, *Pauline Guichard*, and *La Duchesse* (silver-gilt Banksian medal).

Messrs. W. Paul & Son, Waltham Cross, exhibited a small but very

creditable stand of Roses, particularly striking amongst which was Empress Alexander of Russia, a new variety raised by the firm, being of a pretty reddish bronze; other fine blooms were Clio, Corunna, Queen Mab, and Sylph. Messrs. Paul & Son, Cheshunt, staged a fine collection of Lilac and Rhododendron blooms, amongst the former being President Carnot, La Tour d'Auvergne, Madame Lemoine, Madame Kreutzer, President Grevy, Virginité, Lemoine flore-pleno, and Souvenir de Louis Spathe. Amongst the latter Mrs. Charles Butler and others were very fine. Cannas were well represented in the group with Tom Thumb, Comet, Progression, Miss Sarah Hill, Cheshunt Yellow, Charles Moore, Mrs. Tasker, President Chandre, L. E. Bally, and others.

Messrs. John Peed & Sons staged a compact group of Ferns and foliage plants, amongst others being Caladiums William Bull, Triomphe de Comte, Reine de Danemark, Linne, Charlemagne, and Mrs. Harry Veitch; Begonia Arthur Malet, Strobilanthes Dyerianus, Dracaena Sanderiana, and D. Lindenii (silver Banksian medal).

Messrs. Jas. Veitch & Sons, Chelsea, exhibited a magnificent collection of Tulips in bloom in great variety of colour. Amongst the Parrot variety were lutea major, Constantinople, Perfecta, Mark Graaf, Café Buren, Preciosa, Coffee Colour, and Rubra major. Amongst the byblœmens were Czar Nicholas, Reine des Fleurs, La Grandesse, Osman Pacha, and Graaf Buren; the hizarres being well displayed in Everet Kroschell, President Thiers, Wilhelmina, Sir M. Montefiore, and others. Other varieties were Picotee, Summer Beauty, Queen of the Reds, and Bouton d'Or. The same firm also sent a few choice Caladiums—namely, Marquis of Camden, Lord Derby, Sir William Broadbent, and Sir Julian Goldsmid (silver Flora medal).

Messrs. Barr & Son, Covent Garden, staged a large and effective group of Tulips and other hardy flowers, the whole of which were of an exceedingly high order, the former consisting of such varieties as Yellow Rose, Picotee, fulgens, Striped Beauty, Roe Pomponne, Yellow Queen, elegans alba (award of merit), vitellina, flava, Gesneriana, alba marginata, Golden Beauty, Goldflake, macrospeila, Coffee Colour, Crimson Beauty, and Perfecta. Among the Darwins were Purple King, The Sultan, Dorothy, Gipsy Queen, Bronze King, Queen of the Lilacs, Early Dawn, May Queen, and Queen of the Brilliants, all of which were exceptionally fine. In a collection of breeder Tulips the principal varieties were Music, Lord Frederick Cavendish, Agnes, John Heap, Sulphur, Annie McGregor, Excelsior, and Miss Foster. The rectified collection was composed chiefly of Duke of Devonshire, Mahel, Dr. Hardy, Aglaia, Sir Joseph Paxton, Black Diamond, George Hayward, Lord Denman, Gold Cup, Holmes' King, Princess Royal, Masterpiece, Hero, Charles Tait, Adonis, Mrs. Jackson, and Industry. Amongst other flowers were Androsace sarmentosa, Phlox setacea atro-purpurea, and nivalis, Primula japonica alba, Aubrietia Eyrei and rosea, Arenaria montana, Genista Andreaana, and several single Pæonies of distinct colour (silver-gilt Banksian medal). Mr. McIvor, gardener to R. Maitland, Esq., Conrie Castle, Dunfermline, Fife, staged a group of Auricula and Polyanthus flowers. Messrs. Saltmarsh & Son, Chelmsford, sent flowers from a seedling Lilac, Syringa vulgaris ruberrima. Mr. J. F. McLeod, Dover House Gardens, Roehampton, sent an exceptionally large plant of Medinilla magnifica. A group of Canary Island flowers were sent by the Director of Kew Gardens, consisting of Statice Bonegali, Ranunculus cortusæfolia, Cineraria cruenta, Cytisus racemosus, and Cytisus filipes.

COMPETITIVE CLASSES.

In the special class for a group of Daffodils, for which prizes were given by Messrs. Barr, the first was awarded to Mr. G. McIvor for a collection in which were N. Major, Glory of Leiden, Mrs. Vincent, Odorus Rugulosus, Mrs. Langtry, Duchess of Westminster, Queen of Spain, poeticus ornatus, Frank Miles, Leedsii, Little Dirk, Duchess of Brabant, and others. The second prizes fell to C. J. Backhouse, Esq., St. John's, Walsingham, Darlington, the flowers not being so fine as in the former case.

Mr. Downes, gardener to J. T. Bennett-Poë, Esq., Cheshunt, staged some grand Tulips in the class for a collection of English amateurs' varieties. Amongst the best were Mabel, both in the breeder and rectified state, Talisman, Dr. Hardy, Sulphur, George Hayward, Queen of the North, and Sir J. Paxton (superb). There was no other exhibitor in the class.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair); and Dr. Masters, with Messrs. J. O'Brien, De Barri Crawshaw, H. M. Pollett, M. Protheroe, H. J. Chapman, J. T. Gabriel, C. Pilcher, Ed. Hill, T. W. Bond, W. Cobb, J. Douglas, S. Courtauld, F. Sander, T. Statter, T. B. Haywood, and H. Ballantine.

Mr. W. Stevens, gardener to W. Thompson, Esq., Walton Grange, Stone, sent a small but choice collection of Orchids in variety. Particularly noticeable were Odontoglossums crispum The Bride, very fine; Ruckerianum ocellatum; Andersonianum, Thompson's variety; Rossi rutescens, cordatum aureum, and Cattleyas intermedia alba, very fine; and Skinneri alba (silver Banksian medal). From De B. Crawshaw, Esq., Sevenoaks, came a handsome form of Odontoglossum crispum named Florrie, O. Halli xanthoglossum, O. Andersonianum, and a grand Cattleya Mendeli, named by special permission Princess of Wales, and which was deservedly accorded an award of merit.

Three Orchids were sent by Messrs. Hugh Low & Co., Clapton, comprising Lælia purpurata Russelliana, L. p. Schröderæ, and a fine hybrid Cypripedium called Gertrude Hollington, which is described below. Mr. H. J. Chapman, gardener to R. I. Measures, Esq., Camberwell, received

a first-class certificate for Cypripedium Godefroyæ (?) leucochilum (see below).

A very fine plant of Odontoglossum cirrhosum came from Mr. G. W. Cummins, gardener to A. H. Smee, Esq., The Grange, Wallington; and W. Cobb, Esq., Tunbridge Wells, sent Cattleya Mossiæ, Dulcote's variety, which, though very fine, did not receive an award. Blooms of Cattleya Clæsiæ were exhibited by Mr. Johnson, gardener to Thos. Statter, Esq., Stand Hall, Manchester.

Mr. J. Davis, gardener to J. Gurney Fowler, Esq., Glebelands, South Woodford, staged Cattleya Mendeli leucoglossa (award of merit), C. Mendeli Glebelands variety, and also two flowers of C. Mendeli. Mr. J. Pierce, gardener to Mrs. Langton, Hillfield, Reigate, showed a plant of Cirrhopetalum Macraei, and received a botanical certificate, while Mr. B. Dunn, gardener to H. Weetman, Esq., Little Haywood, received a cultural commendation for a plant—a species of Phaius.

Mr. W. Rapley, gardener to H. Grinling, Esq., Harrow Weald House, Stanmore, staged Cypripedium tortilis and C. Wallisi, both in excellent form. An Odontoglossum, the result of a cross between maculatum and cordatum, was shown by Messrs. F. Horsman & Co., Colchester.

The largest and finest collection of Orchids was arranged by Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, Chelsea. It was an exceedingly diversified and interesting exhibit, comprising Epidendrum O'Brienianum roseum (award of merit), Cypripedium bellatulum, Dendrobium thyrsiflorum, Lælia purpurata, Odontoglossum Ruckerianum, Cattleya Mossiæ, Maxillaria Sanderiana, Chysis chelsoni, Cymbidium Lowianum, Cattleya Schröderæ, Oncidium concolor, Dendrobium infundibulum, Lycaste cruenta, Oncidium ampliatum majus, O. superbiens, Odontoglossum cordatum, O. crispum, O. triumphans, Dendrobium glomeratum, Cypripedium caudatum Wallisi, C. Euryale, C. orphanum, and numerous others (silver Flora medal).

CERTIFICATES AND AWARDS OF MERIT.

Cattleya Mendeli leucoglossa (T. Statter).—This is a handsome form of Mendeli with delicately rose-tinted sepals and petals. The outer portion of the lip is pure white, the throat being striped and flushed yellow. The lip is charmingly fimbriated (award of merit).

Cattleya Mendeli Princess of Wales (De Barri Crawshaw).—The petals of this very beautiful Cattleya are broad, substantial, and of a rosy white shade, deeper at the tips, the sepals, which are narrow, being of the same colour. The lip is a superb feature, it is splendidly fimbriated, and of an exceedingly rich purplish maroon with a pale yellow throat striped with crimson (award of merit).

Cypripedium Godefroyæ (?) *leucochilum* (H. J. Chapman).—This is a superb flower, with a milk-white pouch. The dorsal sepal is broad and very substantial, and having a white ground colour, with reddish-chocolate markings. The petals have also a white ground, but the markings are in this case somewhat duller in hue. They are broad and strong. This variety is faithfully portrayed in fig. 71 (page 423), which was sketched at the Drill Hall (first-class certificate).

Cypripedium Gertrude Hollington (H. Low & Co.).—This is a hybrid, the result of a cross between ciliare and bellatulum. The petals are broad, very heavily spotted brownish-red on a whitish ground. The dorsal sepal is white, tinged green, and striped dull red; the pouch is of medium size, and of a dull red colour (first-class certificate).

Epidendrum O'Brienianum roseum (J. Veitch & Sons).—The colour of this Epidendrum is a very intense, deep rose, that is very pleasing (award of merit).

Lilac La Tour d'Auvergne (Paul & Son).—This is a very handsome variety with large flowers and trusses. The colour is reddish lilac, and the blooms are very sweetly scented (award of merit).

Odontoglossum crispum The Bride (W. Thompson).—The sepals and petals are pure white and of perfect form, while the lip, which is edged white, has a yellow patch with occasional brown blotches (award of merit).

Sambucus racemosus plumosus foliis aureus (R. Wezelenburg and Son).—The leaves of this variety are narrow, very deeply cut, and of a pale yellow colour (award of merit).

Tulipa elegans alba (Barr & Son).—This is a white variety of the well-known and popular elegans. It is edged quite in Picotee fashion with bright rose (award of merit).

THE LECTURE.

A pleasant episode in the day's proceedings was an interesting and instructive lecture on "The Plants and Gardens of the Canary Islands," by Dr. Morris of Kew, and illustrated by dissolving views. In speaking of the climate of the islands, the lecturer said it was all that could be desired, the mean temperature being 60°. A map was displayed showing the relative position of each island; the coasts are all bold and rocky, the aspect being singularly grand and majestic. The first knowledge of the islands commenced with Humboldt, who wrote graphically of them in one of his works. The land is cultivated at a considerable expense, as all has to be irrigated with water which comes from the mountainous regions and is stored in large tanks.

In the lowlands such cultivated plants as Bananas, Vines, and Sugar Canes are to be found, while at a high altitude where the atmosphere is naturally cooler, Laurels, Hollies, and such like trees grow profusely, and beneath their branches Cinerarias and other charming flowers are perfectly at home. In regions higher still, above the cloud level, scarcely any plants at all are to be found. Several varieties of English Ferns, American Aloes, tree Fuchsias, and Pepper trees are among other plants of the Canaries. Views were depicted of many of the native plants, amongst which were Euphorbia canariensis, which grows in

large masses on the roughest rocks; the Dragon Tree, supposed to be one of the oldest and most famous trees in the whole world, specimens of which are now growing at Kew; the Canary Palm, *Filix canariensis*; and the Tree Heath, *Erica arborea*.

Pinus canariensis, which is indigenous to the island, is a handsome tree, and the wood is largely used in the construction of balconies. Views were given of botanic and other gardens in the Canaries, which were very beautiful, each having a decidedly tropical appearance. Dr. Morris showed specimens of several flowering plants which are natives of these regions, such as *Ranunculus cortusifolius*, one of the prettiest of the species, growing well in mountainous districts. Wallflowers are found at a high elevation, and *Cineraria cruenta*, a fine flowering plant, is seen in great numbers.

Statice of several varieties hail from these climes, as also does the Marguerite, which is so largely grown for window decoration, together with *Cytisus racemosus* and *filipes*, both of which are well known in English gardens. About 100 plants, natives of the Canary Islands, are now growing at Kew. A picture and description was given of the Royal Palm of Cuba, or the Travellers' Joy, as it is more often called from the fact that it accumulates and stores water, which by wayfarers is much appreciated. A massive Fig tree was also depicted which produced large fruits in great numbers, but which unfortunately were unfit for food. The lecturer gave a graphic description of journeys through the islands, and mentioned many plants that make their home there, amongst others being Myrtles, Bougainvilleas, Orange and Lemon trees, Euphorbias, Aloes, Cacti, Eucalyptus, and *Araucaria excelsior*. He dealt at some length on the climatic influences, soil, and conditions under which many of the native plants grow, and in conclusion of his most interesting lecture was accorded a hearty vote of thanks.

THE PHYSIOLOGY OF PLANTS.

WE have recently received a very useful book—namely, "A Popular Treatise of the Physiology of Plants," written by Dr. Paul Sorauer, Director of the Experimental Station at the Royal Pomological Institute in Proskau (Silesia). The work has been translated by F. E. Weiss, B.Sc., F.L.S., Professor of Botany at the Owens College, Manchester, and is published by Longmans, Green, & Co., London. The book is lucidly written in plain language, easily understood, and the teaching imparted is well depicted in thirty-three illustrations. The author has grasped the whole subject in an exhaustive and comprehensive manner, giving a thoroughly scientific account of the functions of the various organs of plant life, and at the same dealing with practical applications of the principles of vegetable physiology.

Professor Sorauer, in addition to being an authority on the diseases of plants, was for many years the director of an institution which had in view the scientific training of gardeners and agriculturists. It might have been in this capacity that he became aware of the existence of a long-felt want, which his book supplies—viz., imparting scientific knowledge in language easily understood and comprehended by the ordinary class of gardeners, and his book is worthy a place in every gardener's library. The author has carefully avoided any mixing of subjects, thoroughly dealing with one before proceeding to the next.

He commences by showing what conception a gardener should form of a vegetable organism, and what the functions are of the various organs of a plant, and in dealing with the structure of the root takes in rotation the absorptive portion, the root tip, the conducting portion, and the process of conduction. The nutrition of the root is thoroughly dealt with, showing what substances must be present in the soil for the continuous nutrition of plants; the effect of the nutritive substances on the plant, and the form in which they enter it; also the way the root finds the nutritive substances in the soil. It is shown how soil can be improved so as to obtain the best crops, how the nutrition of pot plants may be effected, and the way in which roots obtain their necessary supply of air; moreover, the author shows how roots should be treated in transplanting, pruning, and in repotting.

The stem is next taken, showing the structure of the same, and how its functions are performed. After which comes the leaf, explaining which cells are the most essential, how the leaf is developed, and the important mission it has to fulfil. The author goes on to show why the growths of cultivated plants must be pruned, what is the least injurious form of a cut, and how summer pruning differs in its results from that of the winter. Also the effect of the different methods of pruning, and how it must be conducted to regulate the development of the tree.

Propagating is an interesting subject, showing what is meant by, and the use of layering; the rules that should be followed in rooting cuttings; the objects in view during the process of budding and grafting, and how the operation should be performed, and to what extent scion and stock influence each other.

The theory of watering shows why special attention should be paid to this operation, after which follows an exhaustive chapter on the flower, showing of what parts it consists, how single and double blooms are developed, and how a gardener can determine such development. The formation of fruits and seeds are also explained, and the conditions governing their production elucidated. In short the book is extremely interesting and very instructive. The following extract will indicate its character:—

HOW SHOULD ROOTS BE TREATED IN TRANSPLANTING?

"In the treatment of the roots of our cultivated plants we must first consider what part the root plays in the economy of the plant; and

secondly, whether it is of economic value for us. In the case of annuals, it is the rapidly growing absorptive and fixing organ; in perennials, besides absorbing the water contained in the soil, it serves also partially as a storehouse for reserve material, which the plant wishes to keep for the next vegetative period. In fleshy or tuberous roots, the storage function lasts for the greater portion of the life of the plant.

"Its chief function is as an organ of absorption for the nutritive solutions of the soil. It is self-evident that, other things being equal, the development of the upper portions of the plant, especially of the assimilating leaves, will depend upon the amount of nutritive substances which are absorbed. Conversely, the greater development of the leaves will result in a greater production of organic matter (assimilated substance), and, therefore, more of this plastic matter will reach the root system, and supply it with the means for producing new ramifications.

"The above-mentioned reciprocity must always be taken into account. If sickly plants with few leaves, or no leaves at all, are able to form new roots, and if, on the other hand, plants with feeble or damaged roots are able to produce new leaves, it is obvious that such a growth must take place at the expense of reserve material which is stored up in the main axis of the plant.

"In the treatment of plants which are restoring their root system by the production of accessory roots, the first rule is to so reduce the work of the leaves that it is in harmony with the activity of the roots.

"This rule is not confined to pot plants, but applies equally to plants grown in the open. The former may be placed during the period of root development in close damp houses or frames, so that the amount of their transpiration is reduced, and, therefore, corresponds with the reduced absorption of the root system.

"In trees and bushes which are transplanted the root system is always injured; the most apparent injury is the absence of the root tips and of the absorptive region immediately behind them. In the case of such a reduction of the absorptive root tips, it is evident that the plant would possess too large an amount of foliage if all the branches which had been formed were left intact. How can the root system, which has been damaged and cut in taking it out of the soil, absorb sufficient water for the full development of all its leaves? However much we may water the root, it will be of little avail; it may even be injurious to the plant, as the saturation of the soil with water may cause decay to set in at the cut ends. We must emphatically contradict the view which is still held and acted upon by some, that in transplanting trees and bushes the branches should be left unpruned.

"Transplanted woody plants must have their crowns reduced. It is only a question as to how the pruning should take place, so as to assist as much as possible the speedy formation of new roots. If we assume the roots to be properly pruned, the production of adventitious roots depends upon the excess of food substance formed in the leaves over their consumption. This excess will find its way down the stem into the root system. Again, other things being equal, the amount of assimilated food matter available for the roots will depend upon the rapidity of development of, and upon the amount of work done by, the foliage. The more rapidly, therefore, we can produce a large number of actively functioning leaves, the sooner will the stem be in a position to pass down material for the formation of new roots.

"But with regard to a rapid and strong development of leaf surface the several buds of a branch behave very differently, and we may take it as a rule that the uppermost buds of every branch are the first to develop and produce the largest amount of leaf surface. We must, therefore, leave intact some branches, reducing the intervening branches to one-half or one-third of their length, according to the amount of damage of the root system. In this way we secure the development of a number of leaves at the ordinary time, and consequently a certain amount of new assimilated food substance. For these few branches the amount of sap absorbed is quite sufficient, and the development of adventitious roots begins near the cut ends of the rootlets before the buds of the pruned branches, which only form a small amount of leaf surface, have begun to open. The absorptive organs will, therefore, have increased in proportion to the new leaf surface. The method of 'partial pruning' deserves the preference for transplanted trees and bushes."

ARGON IN PLANTS.

I AM indebted to Mr. G. Abbey for the trouble he has taken (page 412) in replying to my query on page 388, *re* the above subject. In the original article on "Plant-forming Elements," we were informed that "argon enters into the composition of plants;" the fact stated by Mr. G. Abbey—namely, that argon is present in plants, can only be proved by experiments similar to those carried out by Professor Ramsey, and as he failed to obtain it, we must either suppose that Mr. Abbey has been more successful than the learned professor, or it is merely an assumption on his part.

The information given in the first part of Mr. Abbey's reply is simply a repetition of the statement made by the discoverers before the Royal Society. His statement respecting the discovery of hydrogen and the composition of water by Cavendish, Scheel's observation that a mixture of hydrogen and oxygen will explode, and also the very remarkable statement that "ozone . . . is due to the union of oxygen with phosphorus" are interesting, but I fail to see that this is an answer to my question. Anyone with the most elementary knowledge of chemistry would not expect to find ozone in the vicinity of manure heaps, and are perfectly familiar with the properties of nitrogen. This is, however,

begging the question. Mr. Abbey has made a definite statement that "argon is found in plants." Professor Ramsey says that up to the present time it has not been found, and he has carried out experiments to prove the fact. Mr. Abbey says, "Surely we ought to be satisfied with . . . Professor Ramsey's statement." Quite so, for we shall then accept the fact as true that "argon has not been found in plants or animals." Mr. Abbey says, "Surely I had authority for my negative statement." Yes, I had the words of Professor Ramsey's statement "that argon was not yet found in plants," and I considered I ought to accept that as true until it could be proved by experiments to be not so.

I asked Mr. Abbey on page 388 if he would tell us something more about this newly discovered element, doubting not he would be able to do so, but on reading his reply I must own that I failed to find anything which proved that argon was present in plants. Mr. G. Abbey says, "All chemists acknowledge that there is some unrecognised element present in the nitrogen as derived from air, plant, and animal analysis, and that element as regards air has been shown by Professor Ramsey to be argon." Then why could not Professor Ramsey get argon from the nitrogen derived from plants and animals by the same means that he got it from the air? In conclusion, I wish to say when reading the article on "Plant-forming Elements," I was, no doubt, like many other readers of your paper, interested to find that the element argon entered into the composition of plants, for there is always something interesting about a new thing, but I was very disappointed to find nothing further mentioned in the article named, hence my inquiry in the reply to which I cannot find any facts to uphold the statement that "argon enters into the composition of plants."

Mr. G. Abbey quotes that "plants in the first instance lived in an atmosphere of nitrogen," and yet he stated on page 332, "plants cannot live if confined in an atmosphere of pure nitrogen." Which is correct? I should like to say more in connection with the primary atmosphere, but I am afraid it would be going outside the question.—W. DYKE, *Turnford, Herts.*

LEPTOSPERMUM BULLATUM.

THE correspondent who inquires after this plant will find it very charming. It is hardwooded, and will grow freely in any ordinary glass structure and bloom most profusely. The flowers (fig. 73) are pure white, and so abundantly are they produced that in some instances the narrow dark green leaves can scarcely be seen. This *Leptospermum* grows quickly in a compost of peat, sand, and light turfy soil, the only special care it needs being good drainage and judicious watering.

LIVERPOOL NOTES.

NEW PARK FOR WAVERTREE.

FOR many months past a large army of workmen has been employed in draining and levelling the large piece of land adjoining the L. and N.W. Railway embankment at Wavertree, in all over 100 acres. The work has been done in no stinted manner, every precaution being used to set it out to the best advantage. This part of the work being completed, new roads were cut, forest trees planted, handsome stone entrances erected, such as we had not in Liverpool, and all cottage property in the immediate neighbourhood put in thorough repair.

Speculation was rife as to what use the ground was to be put, also the name or names of those who were paying for the work, but all to no purpose, and so for months what was known as "The Wavertree Mystery," was kept a profound secret until the last meeting of the Liverpool Council, when Mr. Rhind, the Surveyor in charge of the ground, offered on behalf of an anonymous donor, the whole of the 108 acres to be used as a public park and playground for the people of Wavertree, with cottage property likely to bring a yearly income of over £400, the latter to be given towards the maintenance of the park.

Needless to say the magnificent gift was unanimously accepted by the Lord Mayor and the Council. A meeting of the Parks and Gardens Committee was held on Wednesday 8th, when much gratitude was expressed for the liberality displayed by the generous donor, whose gift to the city by the presentation amounts to between £80,000 and £90,000. Of the park itself, the one aim seems to have been to provide the greatest amount of space for the people without sacrificing it in any way to useless ornamentation.

This, with the handsome gift of the new conservatory in Sefton Park by Mr. Yates Thompson is sufficient proof that public spirit is not yet dead as regards Liverpool. The work of erection of the conservatory is being rapidly pushed forward by Messrs. Mackenzie & Moncur of Edinburgh, and the Committee felt that in consideration of two such splendid gifts in one season that there ought to be more than a formal opening. And so the name of the donor of the Wavertree Park remains a mystery still; but he can rest assured that, although his name may be hidden, he has conferred a countless treasure to hundreds of poor people who think of the true spirit in which it is given.

STRAWBERRIES AND AMARYLLIS AT KNOWSLEY HALL.

Never at any time has it been my good fortune to see such a splendid crop of Strawberries in pots as I saw at Knowsley Hall recently. La Grosse Sucrée, Keen's Seedling, and Royal Sovereign were the varieties grown, the former showing at a glance how useful it is for early work,

whilst the latter is one of the greatest gains we have had for years. These two are to be grown for early work alone, and Mr. Doe has good reason to be satisfied with the choice he has made. Before leaving them I may remark that they were from runners laid in from the previous season, potted in 4½-inch, and transferred to 6-inch pots. The thought strikes one of the time and trouble that could be saved if when cleaning the beds, after the fruit is gathered, a few runners of each kind were laid in, how much easier would be the work of potting, instead of having to trample between rows already laden with fruit to layer the season's stock.

Amaryllis, too, are a great feature, the late respected head gardener, Mr. F. Harrison, who is now enjoying honourable retirement, having for years made them a special study. Mr. Doe is fully alive to their merits for many purposes of decoration, and is carrying on the good system of culture which has made Amaryllis at Knowsley famous in the past, and which will maintain the standard in the future. There were about 800 in bloom at the time of my visit.

TWO USEFUL SPIRÆAS.

Perhaps amongst the numerous flowers that have helped to adorn our conservatory for many weeks past none has come in for a greater



FIG. 73.—LEPTOSPERMUM BULLATUM.

share of attention than *Spiræas astilboides* and *compacta multiflora*. The former with its long slender feathery spikes of purest white blooms is invaluable either for conservatory work, cutting, or house decoration, its foliage being so distinct. *Compacta multiflora* I grew for the first time last season, a second trial convincing me that it is indispensable in every way. We have had several plants which looked almost like dwarf *Celosias*, so beautiful were the spikes. Though not so pure as *japonica*, many of the single spikes will yield almost as much flower as could be got from a medium-sized clump of *japonica*. For forcing, too, they are everything to be desired.

A PRETTY COMBINATION.

Too often, I fear, we overlook the beauty derived from some of the easier grown flowers and their adaptability for harmonious blending from a decorative point of view. In looking over my notebook I came across the following:—"Bouquet in a florist's shop in town, Michaelmas Daisy var. *amellus* *bessarabicus* and Marguerite Rêve d'Or—a pretty combination." Yes, as I write, I fancy I can see it before me; the rich lilac purple of the Aster adding more lustre to the golden Marguerite, with tiny bits of *Asparagus plumosus* peeping here and there. It was all so simple, yet how beautiful, with no hothouse

accommodation to bring them to perfection, for either will grow and flower profusely during the summer. As the present time is not too late to buy plants, readers of this might do worse than invest in a few of each.—R. P. R.

ROYAL BOTANIC SOCIETY.

UNDER favourable weather the first summer show of this Society was held at Regent's Park on Wednesday last. The exhibits, instead of being staged in the orthodox style so often seen, were pleasingly dotted about on mounds in a large tent. In the competitive portion the exhibits were but few, many of the classes being entirely empty. The miscellaneous exhibits of nurserymen and others were numerous and varied, and added much to the beauty of the show, some of the groups of Roses and mixed plants being exceptionally fine.

Mr. T. S. Ware, Tottenham, was first for a group of hardy herbaceous plants, which consisted chiefly of *Doronicum Clusi*, *Primula Sieboldi*, *Saxifraga pyramidalis*, *Alyssum saxatile compactum*, *Spiraea japonica nana compacta*, *Spiraea palmata*, *Phlox canadensis*, *Pink Her Majesty*, *Cypripedium calceolus* and *pubescens*, *Saracenia flava*, and others. Messrs. Paul & Sons, Cheshunt, were second with a collection neither so fine or varied as the former.

Mr. T. S. Ware was also first for group of tuberous-rooted Begonias, the plants being well grown and crowned with fine flowers. Amongst many others were Victory, Rosebud, Princess May, Challenger, Samuel Pope, Miss Dora Richards, Mr. John Fowler, Baroda, Bexley Gem, Novelty, Leviathan, Viscountess Cranbrook, and Miss Dolly Fell. Mr. C. Turner, Slough, was a good first for collection of Pelargoniums, the plants being large and thickly bloomed. The chief varieties were Sultana, Martial, Maid of Honour, Lady Isabel, Princess Teck, Joe, Ellen Beck, Mystery, The Shah, Spotted Beauty, Fanny Gair, Rosetta, Purity, Rosy Morn, Symmetry, Magpie, and Fireball. Mr. G. Bond, gardener to S. F. Fisher, Esq., Streatham, was first for a group of Gloxinias, the second prize falling to Mr. R. Scott, gardener to Miss Foster, The Holmes, Regent's Park.

Mr. Geo. Cragg, gardener to Walter C. Walker, Esq., Percy Lodge, Winchmore Hill, was first for a group of exotic Orchids, the plants being well flowered, and consisting of pleasing varieties of Cattleyas, *Lælias*, *Odontoglossums*, *Oncidiums*, and *Cypripediums*. Mr. C. Turner was a good first for a group of Roses, the exhibit consisting of well-flowered plants of Crimson Rambler, Charles Lawson, Duchess of Albany, Juno, Marchioness of Londonderry, La France, and others. Messrs. William Paul & Son, Waltham Cross, came second with a group of little less merit, amongst which were fine plants of Crimson Rambler. Mr. C. Turner was first for a group of greenhouse Azaleas (open to nurserymen), the plants being thickly covered with bloom. Mr. W. Barrett, gardener to Mrs. Thornton, The Hoo, Sydenham Hill, was a capital first for a group of the same plants (open to amateurs) with large, well-flowered plants. The second prize in this class fell to Mr. R. Scott for plants not quite so fine.

Mr. W. Barrett was also first for a group of Azaleas, any size, the second, as in the former case, being gained by Mr. Scott.

Among the miscellaneous exhibits, Mr. W. Rumsey, Waltham Cross, sent a large group of Roses in pots and cut blooms. The former were well-grown plants, thickly covered with flowers; amongst other varieties being Albert Page, The Queen, Magna Charta, Spenser, Mrs. J. Laing, La France, Mrs. Rumsey, John Stuart Mill, Princess Vera, Duchess of Albany, and Madame Isaac Periere; and among the latter fine flowers of Niphetos, Maréchal Niel, Marie Van Houtte, and Baroness Rothschild were very conspicuous.

Mr. J. Perry, gardener to J. C. Tasker, Esq., Middleton Hall, Brentwood, sent a group of Cannas, amongst which were Progression, Paul Bryant, Alphonse Bouvier, and Madame Crozy. A very creditable bank of Roses in pots was also exhibited by Mr. Perry, the finest plants being Turner's Crimson Rambler, Innocente Pirola, Cleopatra, Ella Gordon, Ernest Metz, The Bride, and La France. Mr. R. Scott added to the beauty of the show by exhibiting an interesting group of plants arranged effectively, and composed chiefly of *Azalea mollis*, White Marguerites, Cannas, *Lilium Harrisii*, *Caladiums*, *Asparagus plumosus*, with Palms and Ferns. Mr. T. S. Ware sent a collection of Tulip flowers consisting of all the sections, the blooms being large, substantial, and varied in colour. This same firm also staged plants of *Pæonies* in bloom.

Messrs. T. Rivers & Sons, Sawbridgeworth, Herts, sent a group of Peaches and Nectarines in pots. The plants were thickly studded with fruits, which were of a delightfully rich colour, testifying to the fact that the plants had been highly cultivated. Messrs. B. S. Williams and Son, Holloway, sent a fine exhibit of mixed foliage and flowering plants, which were arranged with taste, and consisted mainly of *Dracenas* Lord Wolseley, pendula, Madame F. Bergman and Lindeni; *Crotons* Bachi, Disraeli, and others; *Caladiums* Leopold Robert, Alice Van Geert, candidum, and Baron James de Rothschild, together with *Amaryllis*, *Anthuriums*, Palms, and plants of *Ficus elastica*. The same firm also exhibited floral designs in the form of wreaths, bouquets, and baskets of flowers, which in the tastefulness and elegance of construction produced a pleasing effect. Messrs. John Laing & Sons, Forest Hill, exhibited a very creditable group of mixed flower and foliage plants, which were tastefully arranged on a mound. Particularly noticeable were fine well-grown plants of Gloxinias, amongst others being Majestic, Mrs. Laing, John Laing, and Leopard; Begonias Duke of Fife, Duchess of Teck, Laing's Triumph, and Earl of Cranbrook; *Caladiums* Baron de Mamore, Rose Laing, and Pauline Guichard.

Orchids were represented with *Dendrobium thyrsiflorum*, *Oncidium sarcodes*, and *Cymbidium Lowianum*. Several fine *Crotons* were also included—namely, Thompsoni, Countess, Burtoni, and Reidi, as also were plants of *Azalea mollis*, Cannas, *Nepenthes Mastersiana*, *Anthuriums*, *Dracena Sanderiana*, and *Erica Cavendishiana*.

Messrs. Barr & Son, Covent Garden, sent a fine display of Tulip blooms and other hardy flowers. Amongst the former being Coffee Colour, Crimson Beauty, Striped Beauty, flava, Yellow Queen, Goldflake, together with many rectified and breeder blooms of distinctive form and variety. Messrs. Jas. Veitch & Sons, Chelsea, staged Tulip flowers in fine form and excellent variety, composed of *Isabella*, *Cramoise brilliant*, *perfecta*, *Constantinople*, *Coffee Colour*, *lutea major*, *Golden Eagle*, *Czar Nicholas*, *Prima Donna*, *Aster*, *Anna*, *Osman Pacha*, and many others.

Messrs. Dobbie & Co., Rothesay, staged a fine collection of cut Viola blooms, the colours being varied, and many of the sorts very distinct. Conspicuous in the collection were Ceres, Miss Gibson, Gem, Neptune, Archibald Grant, Lemon Queen, J. B. Riding, Lucy Ashton, Cherry Park, Gipsy Queen, Ariel, Rob Roy, and White Flag. Messrs. W. Paul and Son exhibited a very large and magnificent group of Roses in pots, the flowers and foliage being almost perfect. Amongst many others were noticed Maréchal Niel, Victor Verdier, Spenser, Harrison Weir, Duke of Teck, and A. K. Williams. Mr. George Mount sent fine stands of cut Roses, consisting chiefly of Catherine Mermet, Ulrich Brunner, Maréchal Niel, Mrs. John Laing, and Lady Fitzwilliam. Mr. Arthur Knowles, Woking, Surrey, sent specimen flowers of *Daphne cneorum major*.

THE VITALITY OF SEEDS.

THE duration of the vitality of seeds is perhaps the most important of the various phenomena of plant life, especially when considered in connection with the introduction into a country of the economic plants of other countries. It is a subject that has engaged attention from very early times, and the literature relating thereto is considerable. Much of this, however, is of traditional and unpractical character; but even if we confine ourselves to the demonstrable, or demonstrated, the subject is almost inexhaustible. There is such an infinity of variety in the behaviour of seeds under different conditions, that it is impossible in a short account, such as this must be, to do more than convey a general idea of the subject.

Perhaps the best way to treat the question, apart from technicalities, is to consider the vitality of seeds under ordinary and extraordinary conditions. In the development and germination of seeds there is, in a sense, usually a period of gestation and a period of incubation, as in oviparous organisms of the animal kingdom; and the duration of these periods is within definable limits, under ordinary conditions, though seeds do not exhibit the same fixity of time in regard to development and vitality as eggs. The embryo of a seed is the result of the impregnation of the female ovum in the ovary or young seed vessel, by the male element, generated in the anthers; and in the mature state this embryo may fill the whole space within the skin, or testa, of the seed, as in the Bean and acorn; or it may be a comparatively minute body, as in Wheat, Maize, and other cereals; the rest of the seed being filled with matter not incorporated in the embryo. The difference is one of degree in development. In the one case, the growing embryo has absorbed into its own system, as it were, before germination or the beginning of the growth of the embryo into a new plant, the whole of the nutrient material provided in the seed for reproduction; whereas, in the latter case, the process of absorption and utilisation of the "albumen," or nutrient matter, takes place after the seed is detached from the parent plant, and during the earliest stage of growth of the new plant; so that the plant is nourished until it has formed organs capable of assimilating the food obtainable from the atmosphere and earth.

Between these two extremes of development of the embryo, or future plant, before organic connection with the parent ceases, there is every conceivable degree and variety; and, as will presently be explained with examples, some plants are viviparous, in the sense that the embryo commences active life before being severed from the parent, so that when this occurs the plant is in a position to draw its sustenance from unassimilated or inorganic materials. Now it is a curious and unexplainable fact that certain seeds exhibiting the extremes of embryonal development, instanced in the Bean and Wheat, are equally retentive of their germinative power. The longevity, if it may be so called, of seeds is exemplified in "exalbuminous" seeds as well as in "albuminous" seeds of every degree. It should be mentioned, however, that the difference is not so much one of assimilation or development as of the earlier or later transfer of the nutrient matter of the seed to the embryo or plantlet.

Assuming the perfect maturation of a seed, certain conditions are necessary to quicken its dormant vitality; and the two principal factors are heat and moisture, varying enormously in amount for different plants, and acting much more rapidly on some seeds than on others, even when the amount required is much the same. Neither under natural nor artificial conditions will some seeds retain their vitality more than one season; and all the resources of the accumulated experience of seed importers from distant countries are insufficient in some cases to maintain their vitality. It is not altogether because the interval between the dispersal and the germination of the seed, under ordinary conditions, is necessarily longer; but rather because in the one case the conditions under which a seed will germinate are

much more restricted than in the other. Let us now examine the natural conditions under which seeds are commonly produced and dispersed, in relation to the retention of their vitality; and we shall learn how much more it depends on their nature, or natural means of protection, than on the seasons. An Oak tree sheds its acorns in the autumn, and the leaves which fall afterwards afford them some protection from frost and excessive dryness. But the leaves might be blown away from one spot, and the acorns exposed to intense frost or drought, either of which will speedily kill them. In another spot the leaves may drift into thick layers, with an excessive accumulation of moisture, causing decay of the underlying acorns; and there are many other unfavourable conditions which may destroy the vitality of the acorn. It is apparently impossible, however, to preserve an acorn's vitality by any artificial means for more than one season.

The Scarlet Runner Bean loses its germinative power on exposure to comparatively slight frost, the degree depending on the amount of moisture in it; yet it will retain its vitality for an almost indefinite period under favourable artificial conditions. In both of the examples given, germination would naturally follow as soon after maturation as the conditions allowed. The seeds of the Hawthorn behave differently. Each has contains normally three to five seeds, every one of which is encased in a hard, bony envelope, in addition to its proper coat or testa. Committed to the earth, and under the most favourable conditions, these seeds do not germinate till the second year, and often not so soon. In this instance prolongation of vitality is probably due in some measure to the protective nature of the shell enclosing the seed.

Returning to seeds in which the embryo or plantlet forms only a very small part of the whole body, Wheat may be taken as a familiar and easily observed illustration of a seed, the vital energy of which requires very little to stimulate it into active growth; and yet this same one, having no special protection in the way of coating, will retain its vitality as long, perhaps, as any kind of seed, if not under the influence of moisture. The primary condition to the preservation of vitality in a seed is perfect ripeness. Unripe seeds of many kinds will germinate and grow into independent plants if sown immediately after removal from the parent. The facility with which immature Wheat will germinate is most disastrously exemplified in a wet harvest, when the seeds will sprout while the corn is standing or in sheaf; thus destroying more or less completely the value of the grain for flour, as the starch or flour is consumed in the development of the embryo, or what is left is so deteriorated by chemical change that it is not good for food. There is perhaps no other seed more susceptible to moisture, and none less affected by dryness, or by heat or cold in the absence of moisture.

The kind of vivipary exhibited by the Wheat is occasionally observed in various other plants; and sometimes the seeds of pulpy fruits germinate in the fruit. There is also a class of plants in which vivipary is normal. Prominent in this class are the Mangroves (*Rhizophoræ* and others) of seashores in the tropics. In these plants there is a remarkable adaptation to conditions, which insures their reproduction. From the very inception of the embryo there is no apparent interruption of active vitality in its development and germination. In the earliest stage the cotyledons or seed-leaves are formed, and the radicle or future primary root is represented by a very small point. When the former have attained their full development, which is not great, the latter begins to grow and rapidly increase in size. Each fruit or seed vessel, it should be mentioned, contains only one seed, the rootlet of which points to the apex of the fruit. Soon this rootlet pushes its way through the apex of the fruit, and grows into a spindle-shaped body of great density and length; the cotyledons or seed leaves remaining partly inside the fruit, and acting as an organ of absorption from the parent plant to nourish the seedling. In *Rhizophora mucronata* this radicle attains a length of 2 to 3 feet, and the seedling eventually falls, and by its own weight penetrates and sticks in the mud, leaving the fruit, containing the exhausted cotyledons, attached to the tree, where it dries up. Another singular adaptation to conditions is the vital development of the seeds of aquatic plants which ripen their seeds on or under water. *Vallisneria* is a remarkable instance of this. The unisexual flowers are formed under water; the female on long coiled stalks, which at the right period uncoil, and the flower rises just above the surface of the water. Simultaneously the short-stalked male flowers are detached from the base of the leafstalks, and also rise to the surface. After impregnation has taken place, the stalk of the female flower coils up again, and draws the seed vessel down under water, where the seeds ripen.

It has been explained that heat, moisture, and air are necessary to the germination of seeds, varying immensely for different seeds. We come now to the behaviour of certain seeds under the influence of an unusual or unnatural amount of moisture, heat or cold, especially in relation to the length of the duration of exposure to any one of these factors. It has been proved beyond dispute, by actual experiment, that the vitality of certain seeds, notably various kinds of Bean and *Convolvulus*, is not impaired by immersion in sea-water—or rather floating and partially submerged—for a period of at least one year; and that after having been kept quite dry for two or three years. Plants are actually growing at Kew from seeds treated as described; and some years ago several seeds of *Eutada*, cast ashore in the Azores, whither they had been transported by the Gulf Stream, were raised at Kew.

So far as at present known, all the seeds that will bear very long immersion without injury have an intensely hard, bony, or crustaceous coat, that would withstand boiling for a minute or two without killing the embryo. Yet it is difficult to understand this power of resistance, especially after being kept dry for a long time. This imperviousness to

water explains the wide distribution of many seaside plants, the seeds of which are conveyed by oceanic currents. How long such seeds would retain their vitality in water is uncertain, because experiments have not reached the limit. Many readers will remember Darwin's experiments in this connection; but it should be borne in mind that they were chiefly with seeds of plants not at all likely to be dispersed by the sea.

It has already been stated that some seeds will bear immersion in boiling water for a short time, and gardeners occasionally practise this treatment to accelerate the germination of hard-coated seeds. But seeds of all kinds will bear for a considerably longer period a much higher dry temperature than soaking in water of the same temperature. It is recorded, by trustworthy authorities, that the seeds of many plants—Poppy, Parsley, Sunflower, and various kinds of grain, for instance—if perfectly dry, do not lose their vitality when subjected to a temperature of 212° F. for forty-eight hours; and for shorter periods to a much greater heat. The result in most cases, though not all, is a considerable retardation of germination. Dry grain is equally impervious to cold. In 1877, seedling Wheat was exhibited at the Linnean Society that had been raised at Kew from grain that had been exposed to the intense cold of the Arctic expedition of 1874 to 1876.

The next question that arises is, How long do seeds retain their vitality when stored in the ordinary ways adopted by dealers? As a rule, seedsmen and gardeners prefer new seeds, because a larger percentage germinates; and mixing old seeds with new tells its own tale in irregular germination. Nevertheless, there are many seeds that retain their vitality from five to ten years sufficiently well to be depended upon to yield a good crop. Old Balsam seeds, other things being equal, have the reputation of yielding a larger proportion of double flowers than new; and some gardeners consider that Cucumber seeds of four or five years of age give better results than those of the previous year. As already mentioned, perfectly ripened seeds will retain their vitality longer than those imperfectly ripened. In illustration of this, we note that Carrot seeds grown in France retain their germinative power, on the average, longer than English-grown seeds, owing to climatal differences.

There is one other natural condition in relation to the vitality of seeds that should be mentioned: that is, the duration of the vitality of seeds on the mother plant. Some of the Australian *Proteaceæ*, and some of the Fir trees, especially North American, bear the seed-vessels containing quick seeds of many successive seasons; and only under the influence of excessive drought or forest fires do they open and release the seeds. Rapid forest fires are often not sufficient to consume the cones, but enough to cause them to open and free the seeds for a succession of trees. The unopened cones of thirty years have been counted on some Fir trees; and it is averred that the first seed-vessels of some proteaceous trees do not open to shed their seeds, under ordinary conditions, until the death of the parent plant, so that a tree may bear the accumulated seeds of half a century or more.

Finally, a few words respecting the extreme longevity attributed to certain seeds. The reputed germination of "mummy Wheat," from two to three thousand years old, has been the theme of much writing; but the results of careful subsequent experiments with grain taken from various tombs do not support the doubtless equally conscientious, though less skilfully conducted, experiments, supposed by some persons to have established the fact of Wheat of so great an age having germinated. Indeed it is now known that the experiments mainly relied on to prove this long retention of vitality were falsified by the gardener who had charge of them. Nevertheless, there is no doubt that some seeds do retain their vitality for a very long period, as is proved by numerous well-authenticated instances.

Almost every writer on physiological botany cites a number of instances. Kidney Beans taken from the herbarium of Tournefort are said to have germinated after having been thus preserved for at least 100 years. Wheat and Rye are also credited with having retained their vitality for as long a period. Seeds of the Sensitive Plant (*Mimosa pudica*) kept in an ordinary bag at the Jardin des Plantes, Paris, germinated freely when sixty years old. A long list might be made of seeds that have germinated after being stored for twenty-five to thirty years. If seeds retain their vitality for so long a period as this under such conditions, it is quite conceivable that seeds buried deeply in the earth, beyond atmospheric influences, and where there was not excessive moisture, might retain their germinative power for an almost indefinite period; and the fact that plants previously unknown in a locality often spring up where excavations have been made, bears out this assumption. The same thing happens in arable land should the farmer plough deeper than usual; and deeper tillage, which would otherwise be beneficial, is often avoided on this account.

A careful writer like Lindley states, though without qualification, that he had Raspberry plants raised from seeds taken from the stomach of a man whose skeleton was found 30 feet below the surface of the ground. Judging from coins found at the same place, the seeds were probably 1600 or 1700 years old. One more example of seeds germinating that are supposed to have been buried some 1500 to 2000 years. About twenty years ago on the removal of a quantity of slack of the ancient silver mines of Greece, several plants sprang up in abundance previously unknown in the locality. Among these was a species of *Glaucium*, which was even described as new; and it is suggested that the seed may have lain dormant for the long period indicated. But there is not the amount of certainty about any of these assumed very old seeds to convince the sceptical or to establish a fact. It remains yet for somebody to institute and carry out careful investigations where excavations are being made.—W. BOTTING HEMSLEY (in "Nature").



HARDY FRUIT GARDEN.

Hoeing among Trees and Bushes.—A little attention to hoeing down seedling weeds and any advanced in size during sunny weather, will tend to keep the fruit quarters in good trim, and reduce similar work in the future. Weeds abstract food from the soil just as much as legitimate crops. Their presence on the ground ought not, therefore, to be tolerated for this reason as well as the important one of neatness and high cultivation in the fruit garden.

Strawberries.—If mulchings of manure for assisting the growth of Strawberry plants, maintaining the soil moist, and the fruit clean, have not yet been applied to established fruit-bearing beds this ought to be carried out at once. In moist weather a little soot sprinkled over the roots will act most beneficially, not only in nourishing the feeding fibres now in active operation, but in preventing the depredations of slugs among the swelling and ripening fruit later on. In dry, poor soils, a dressing of nitrate of soda is of great assistance in accelerating growth, being especially serviceable to the older, though not absolutely exhausted beds. Apply it at the rate of 1 oz. per square yard. Pound it small, and keep it away from the foliage. Liquid manure should also, if possible, be given to the plants whenever they promise to bear freely and the soil is somewhat poor. Fruit for exhibition will need extra attention given to the plants. Flower trusses must be thinned, and deformed fruit cut out as soon as detected. Fine large fruit of delicious quality is the outcome of intelligent attention, good soil, and judicious feeding.

Planting Forced Strawberries.—Plants of good varieties that have been forced are worth retaining, if only to provide stock for obtaining a supply of runners. After duly hardening the plants in cold frames they may be planted in rich, well prepared soil made firm about them. Afford water liberally in dry weather until the plants are well rooted.

Young Plants.—Very young or recently planted Strawberries must, if flowering, have the blooms nipped off, so that the energies of the plants may be utilised in the production of vigorous growth. This treatment secures plump, stout crowns for the succeeding year's crop. Keep down runners as they are produced. Using the Dutch hoe between the plants encourages growths, but in hot, dry weather cover the soil with manure.

Tying and Stopping Vine Shoots.—The growth of Vines on outdoor walls is advancing, and the shoots require attention in securing them in position, stopping them one or two joints beyond the bunches of fruit. Fruitless shoots if reserved must be stopped at the sixth leaf. Overcrowding is prevented by timely disbudding, but where shoots are still too thickly placed have no hesitation in cutting some out, dispensing with a few at a time, which is better than clearing off a number of growths at one operation, and so preventing any possible check.

Apricots, Peaches, and Nectarines.—Look out for aphides on the young shoots, giving the first comers a dusting of tobacco powder, afterwards washing it off, or syringe with a diluted solution of tobacco juice, a pint of the latter to 2 gallons of soapy water. Curled leaves on Apricots may probably be found occupied with the leaf-rolling caterpillar. The best method of exterminating it is by crushing the grubs, as insecticides cannot reach them. Flowers of sulphur dusted on leaves affected with mildew will destroy the fungus, so also will sulphide of potassium, half an ounce to the gallon of water, sprayed on the foliage affected.

Gooseberries.—Caterpillars infesting Gooseberry bushes cause considerable damage by eating away the succulent parts of the leaves, therefore the first broods that may appear ought to be destroyed as soon as possible. At this early stage it is safe to use white hellebore powder to kill them, which it does readily. Dredge it on the infested parts, or if it can be more easily applied with the syringe mix 2 ozs. into a paste with boiling water, and add 2 gallons of water before using. Hellebore being a poison, it should be washed off the fruit before gathering. Red spider on Gooseberry foliage may be destroyed by syringing both sides of the foliage with a mixture of sulphur and softsoap, 2 ozs. of each to the gallon of water. Some of the numerous insecticides so readily obtainable are very useful remedies to have at hand when time presses and insects are rapidly increasing. Remedies applied at the first attacks save both time and trouble afterwards.

Watering Fruit Trees.—Wall trees and others in dry positions ought to have the soil moistened if at all deficient in that respect. Clear water applied now to dry soil will prepare it to receive liquid manure when the fruit is swelling, additional assistance then being needed by the roots. Young trees newly planted will require water during prolonged dry periods, following with light mulchings of short manure to conserve the moisture. Heavy and retentive soils need little, if any, water at present, but the surface must be kept loose. Liquid manure may be applied to old Gooseberry and Currant bushes, which will enhance the size of the fruit now swelling.

Removing Superfluous Growths.—Continue removing shoots or growths that crowd on those necessary to retain, or that are ill placed in any way. It is especially necessary to be particular in this respect, and in regulating the growths when training young trees, as by these means, properly directed, the foundations of symmetrical specimens are laid.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest Forced Trees.*—Where a house of the very early varieties, such as Alexander, Waterloo, and Early Louise Peaches, Advance and Early Rivers Nectarines, was started at the middle of December, and forwarded by fire heat since the new year, the fruit will be ripening or ripe. This is a clear gain of a month on the older and more approved forcing varieties, such as Hale's Early, Royal George, Stirling Castle, Dymond, and Grosse Mignonne Peaches, Hunt's Tawny, and Stanwick Elruge Nectarines; and the fruits being early bring good prices in the markets, these ranging from 18s. to 36s. per dozen this year, the difference in the values being due to the size, colour, and condition of the specimens. While the fruit is ripening, and until it is cleared from the trees, water must be withheld from it, but a genial condition of the atmosphere must be maintained for the benefit of the foliage, the paths and borders being damped as occasioned by their becoming dry, and water be duly supplied to the soil, so as to keep it in a healthy condition. No injury results from the moisture provided it is accompanied by judicious ventilation, a little being afforded constantly at the top of the house.

Trees Started at the New Year.—Where these consist of varieties last named in the preceding paragraph the fruit will be in the last stages of stoning, the second early varieties having completed that process, and must not be subjected to a higher temperature than 60° to 65° by artificial means, commencing to increase the ventilation at 65°, not allowing 75° to be exceeded without full ventilation. Tie in the shoots as they advance, removing superfluous growths, as it is important no more be trained-in than can have full exposure to light and air. If the shoots are crowded thin them as soon as the stoning is completed. Allow one fruit to every square foot of trellis covered with foliage, which will be one to every shoot of last year, although vigorous shoots may be allowed to carry two fruits. By apportioning the fruit to the vigour of the trees or degrees of this in different parts the evenness of the growth may be maintained throughout the tree. After the stoning is completed maintain adequate supplies of moisture in the house by syringing up to the fruit commencing to soften, when it must be discontinued over the trees; but the borders and paths well damped twice a day, or as occasion require. Inside borders require water about once a week when of a porous nature; firm and retentive soil need supplies less frequently. A light mulching of short, sweet material will save watering, encourage surface roots, and promote a genial condition of the atmosphere. Unless it is desired to accelerate the ripening, continue 60° to 65° as the night temperature, and 65° by day artificially in dull weather, and 75° with sun heat, closing at the latter with abundance of moisture. In a higher temperature, and correspondingly moister atmosphere, the fruits swell to a great size after stoning, being very tempting in appearance if well exposed to light, but they are not so well flavoured as those produced in less heat and moisture, with free ventilation.

Trees Started in February.—As the fruit is now commencing the stoning process in earnest the number, if too many, should be reduced, leaving two fruits on strong shoots, but one will be sufficient on the weaker. Reserve in all instances the best situated fruits for receiving air and light. Avoid crowding, thinning where too close, stopping laterals to one joint, and pinching off the points of successional growths at about 15 inches from their base. The temperature by artificial means may be kept at 55° to 60° at night, 60° to 65° by day artificially, ventilating from 65°, and fully between 70° and 75°, it not being possible to give too much air to Peach houses, only avoid sudden fluctuations, and secure the requisite temperature for steady progress.

Trees Started in March.—To secure fine fruit and full crops without distressing the trees, thinning must commence early and be followed up so that few more than will be required for the crop remain at the commencement of the stoning process. It can now be seen which fruits have taken the lead, hence they should be reduced to two or three on strong shoots, one or two on medium, and one or none on weak. Remove all superfluous growths, the remaining shoots being trained to the trellis as they advance. Afford nourishment to weakly trees, either as top-dressings of the advertised fertilisers, washed in or as liquid manure. Vigorous trees need mineral matter, such as lime, phosphate or superphosphate being most suitable, washing in with clear water only.

Late Houses.—As the crop is now well set, a moderate syringing on fine mornings will be of great assistance in ridding the fruit of the remains of the flowers. Commence thinning when the fruits are the size of horse beans, removing the smallest and worst placed, leaving a few more only than will be required for the crop. Disbudding and heeling-in the shoots should be carefully attended to. A temperature of 50° at night will be safe, and 55° by day artificially, ventilating freely from and above that unless it is desired to hasten the crop, when a temperature of 55° at night and 60° to 65° by day artificially may be secured with 70° to 75° by day from sun heat, ventilating from 65°. This rapid forcing is not desirable nor at all times safe.

Unheated Houses.—A moderate syringing on fine mornings or early in the afternoon will be of great assistance in ridding the fruit of the

remains of the blossom, tend to prevent incursions of red spider, and keep down other pests. The houses, however, must not be kept very moist, and the foliage should always be dry before night, as the weather is not yet to be depended on, and a sudden severe frost occurring whilst the house is moist is much more likely to prove disastrous to the crop than when the atmosphere is dry. Ventilate at 50°, not allowing an advance to 65° without full ventilation, and close at 50°, or before if there is a prospect of frost at night. If water is necessary, apply it sufficiently early in the day to allow of the surface becoming fairly dry before night.

Pines.—With the weather changeable and the fruits of early started plants in an advanced stage special attention is necessary, a moderately moist atmosphere and high temperature being essential to their well-being, which condition renders them susceptible of injury from the effects of bright sun, sudden outbursts telling disastrously on the crown, which is not infrequently scorched if the ventilation is not carefully attended to. Watering will require attending to once a week, but avoid indiscriminate periodical drenchings. Plants that have heat at the roots by means of hot-water pipes need more than those having the heat furnished by fermenting materials. In either case water should be given as often as required, on every occasion supplying some stimulant, such as guano, 1 lb. to 20 gallons of water. Admit air at the top of the house by or soon after the sun acts powerfully thereon, maintaining the temperature during the day at 80° to 90°, closing at 85°; but unless it be desirable to enlarge the crowns, do not quite close the house. Fire heat must be employed to prevent the temperature falling below 70° at night, and raise it to 75° in the day, the bottom heat being kept at 80° to 90°. Syringe the house and plants two or three times a week, according to the weather, and maintain the atmosphere in such condition as to secure the perfect development of the fruit.

Cherry House.—Cherries ripening rapidly must be kept dry, but the borders and paths should be sprinkled as required to maintain a genial atmosphere for the benefit of the foliage, air being admitted constantly, or condensation will seriously affect the fruit, causing it to crack. Examine the border, and if necessary afford a thorough supply of water. Tie-in the shoots as they advance, and stop those not required at about the fifth leaf. Ventilate freely on all favourable occasions, and when the external conditions are unfavourable recourse must be had to the heating apparatus to insure a circulation of warm, dry air. Black aphides must be kept in check by fumigation or vapourisation, or by dipping the shoots or leaves in tobacco water. Netting will be necessary over the ventilators, with sufficiently small mesh to exclude birds.

Cucumbers.—Plants in bearing all the winter will now be showing signs of exhaustion, and had better be removed and young plants placed in without delay. All the old soil must be taken out and the house thoroughly cleansed, using entirely fresh sweet material for the young plants. If there is any suspicion of eelworm, syringe the house in every part with a mixture of petroleum and water, a wineglassful to 3 gallons of water, keeping mixed by alternate squirts from the syringe into the vessel and over the woodwork. For the walls and soil parts use that amount of phenyle or creolin instead of the petroleum, and if need be disinfect the soil, using the phenyle at the rate of a wineglassful to 3 gallons of water, moistening the soil evenly through. Assist young plants showing signs of weakness by removing the staminate flowers and the first fruits, stopping at every third or fourth joint, removing all weakly and superfluous growths. Shading will be necessary for an hour or two in the middle of the day when the sun is hot, especially houses facing south, but let it be done before the plants flag, as afterwards it will only prevent further mischief, flagging being invariably injurious.

Houses with roofs facing east and west will not require shading. Little or no fire heat will be required by day, shutting off the valves at about 8 A.M., and opening them again at about 5 P.M. Syringe the plants moderately between 3 and 4 P.M., or earlier, keeping a good moisture all day by damping the floors. Aphides must be kept under by fumigation, filling the house with smoke in the evening and repeating it early in the morning, or it may be practised on two or three consecutive evenings. It is essential to have the foliage dry, but the floor well damped. Red spider may be kept under by removing the worst leaves and syringing somewhat forcibly, but not so as to damage the foliage. Ammonia in any form is disliked by these insects, hence guano or soot water at the roots benefits alike the plants. A little sulphur brushed on the hot-water pipes with a little milk to make it adhere is good against red spider, white fly, and mildew.

Pits and Frames.—Sow seeds for raising plants to occupy pits and frames after being cleared of bedding plants, or early Potatoes. Cucumbers do excellently in such structures, a fair bottom being secured by using the least decomposed material from Seakale, Rhubarb, or exhausted hotbeds, which, with about a fourth of fresh material, will afford all the heat required. Close the pits and frames as early in the afternoon as is safe, not allowing the temperature to exceed 90° to 95°, and employ good night coverings. Maintain a bottom heat of 80° to 90° by duly renewing the linings. Prepare for planting out ridge Cucumbers under hand-lights, the plants being hardened previously.

Strawberries in Pots.—There must not be any lack of moisture at the roots of Strawberries, as when the sun is powerful the fruits are apt to have the skin dried, and they do not swell properly afterwards. After the fruits commence swelling a brisk moist heat is essential, supplying liquid manure liberally until the fruit change colour, when

it must be discontinued, giving less water at the roots. Admit air freely whenever the weather is favourable, avoiding drying currents. Thin the fruits well on late plants, especially the late varieties. Water the plants twice a day, and in bright weather three times, at least examine the plants for that purpose and supply it if required. Liquid manure may be given at the afternoon watering.

THE BEE-KEEPER.

APIARIAN NOTES.

BRIGHT sunshine, easterly winds, and frosty nights have continued for about two weeks. Bees do not work as eagerly as some people think they ought, the reason being honey is scarce, owing to the drought.

Everywhere the bright weather is stimulating the bees to breed, and many hives are now well forward, but are on the verge of starvation, which liberal feeding will keep right, and if favourable weather comes during the next two months end in profit.

There are exceptionally sheltered places near woods where honey trees and flowers abound, hives in some cases being too heavy. Frame hives are easily remedied by removing sealed combs, substituting full sheeted frames. Hives having fixed combs and overcharged with honey should have supers added. When the bees have these well combed, invert the hive, and with a spatula or other instrument break the seals of some of the overloaded combs. This has been done under my instructions in several cases, and is giving every satisfaction.

Although I advise supering in such cases, I by no means recommend it generally until the hives are crowded with bees and the honey flow at hand, unless with hives specially wanted to swarm from which supering is withheld, and in some cases the hives are undersized.

The difference between bees in a hive containing 2000 cubic inches and one nearly as large again, all things being right, favours the bee-keeper from 50 to 100 per cent. more honey where the latter is used. The former may at times fill a super earlier, but it afterwards falls greatly behind.

Nuclei may now be formed as soon as the first swarm has issued. About eight days after the issue of the first swarm divide the brood combs into nuclei boxes holding from three to four frames, making sure each nucleus has a queen cell. Reject all attenuated or smooth walled cells. It is not a bad plan, if there are hives not forward enough for profit, to divide their bees and combs amongst the nuclei, reserving the queen, joining her to a newly swarmed hive, making sure all queen cells are destroyed before doing so.—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES.

As there is now a decided change in the weather for the better, the sun shining daily from an almost cloudless sky, the barometer being high and a corresponding rise in temperature, trees and plants bursting into bloom in all directions, will enable the bees to supply the wants of the daily increasing population of their hives.

Notes should be made of the many varieties of flowers now in bloom that are most frequented by the bees. In the majority of agricultural districts these will be very plentiful. Apples trees are a mass of bloom, and there is a great promise of a heavy crop of fruit if not injured by the late frosts. As vegetation generally is later than usual the bloom will probably escape, as it is quite unusual to have so severe a frost so late in the season as was experienced on the 21st of May last. Plums, Pears, and Cherries are now in full bloom, which, thanks to the bees, will be fertilised, and the trees probably in due course be heavily laden with fruit. From the flowers of these trees a great amount of honey and pollen is obtained, notably in the South and West of England, where many acres of fruit trees are grown. In my own district only sufficient honey is obtained for supplying the present wants of the bees, as fruit trees are not grown in sufficient numbers, and as a rule stocks are not forward enough for supering so early in the year.

The wild Cherry has been a perfect sheet of blossom, and has been of great assistance to the bees. The Sycamore tree, so common in our woodlands, is now in full bloom and produces a great amount of honey and pollen, and is most serviceable to the busy workers in building up strong colonies, for the honey flow which we obtain from the field Beans and White Clover. The former promised well in the autumn, but the majority of crops that I am acquainted with have succumbed to the severe winter, and

the land in which they grew has in several instances been sown with Oats.

Clover, however, has wintered remarkably well; the plants are thickly set on the land, and should the weather be favourable, will be followed by a heavy crop of bloom from which superior samples of honey will be obtained. Wallflowers are now in full beauty; these are much frequented by bees, and are appreciated for their rich perfume. Seeds of these should now be sown for a supply of plants for another year, and ought to be planted in their permanent places in the autumn. Aubrietias, both the blue and purple varieties, form a carpet of flowers, and being a dwarf growing, spreading plant, should be planted as an edging to beds or borders and on the rockery where they may remain for several years without being disturbed. They are propagated by dividing the plants as soon as they have finished flowering, or the blue variety may be obtained from seed, which should be sown at once, and the plants will flower next spring.

Some of the plantations in this neighbourhood are now carpeted with tens of thousands of the wild Hyacinths, forming a mass of colour not easily to be forgotten. These are also very useful for the bees.—AN ENGLISH BEE-KEEPER.

FOUL BROOD IN BEE HIVES.

THE "North British Agriculturist" says:—"We had occasion the other week to show that in the south-western counties of Scotland milk is now so plentiful that the creameries are being flooded with it, even though the price has been reduced to 4d. per gallon. As to honey, the Baronet of Southwick tells us that any working man who has a fancy for bee-keeping can, almost at no cost to himself, produce from a ton to a ton and a half of it per annum, and 'at the moderate computation of 1s. per lb. a ton of honey must realise £120;' but 'as that honey was very often worth 2s. 6d. per lb.' 'the working man who had a fancy for bee-keeping' could very often realise £300 per annum for his honey harvest! If the genial Baronet had said that 'the working man who had a fancy for bee-keeping' could produce annually on an average something like 300 lbs. avoirdupois of honey instead of £300 sterling value in honey he would, we fear, have been much nearer the mark than he was. According to Sir Mark Stewart, foul brood in bee hives is something like tuberculosis in cattle, as the bees affected with this disease become 'piners,' and die off. The deputation to Mr. Gardner urged that power should be given to some properly constituted authority to inspect bee stocks and stamp out all affected stocks. Foul brood is undoubtedly causing a serious loss to those who have hitherto pursued the industry of bee-keeping, and it is to be hoped that effective measures will be taken for the stamping out of this disease."

TRADE CATALOGUES RECEIVED.

W. & J. Birkenhead, Sale, Manchester. — *Illustrated Fern Catalogue.*

F. Cooper & Sons, 30, Manners Street, Wellington. — *Plants and Bulbs.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Vine Growths Deformed (D. and W. B.).—By an oversight, 1 oz. instead of 1 lb. of sulphate of iron was given in the reply on page 417.

Tomato Plants Infested with "Black Stripe" (St. Julien Arabin).—By treating the affected plants with Bordeaux mixture there is a probability that the copper to some extent would enter the tissue

(epidermal cells) and act on the fungus, so that the fruit would mature. The better plan is to use the lime and copper carbonate, as that does not enter the tissues, and there is no danger of poisoning anyone. By pulling up the affected plants the disease is kept from spreading, and there is an end of it providing the plants are burned. We shall shortly publish the results of a microscopical examination of the plant by Mr. G. Abbey. The plant did not arrive soon enough for this to be done this week.

Weevils Eating Roses (D. B.).—The enemy is the destructive weevil, *Otiorhynchus sulcatus*. You should catch all you possibly can with the aid of a lantern at night, as not only are they most voracious, but their larvæ in the soil devour the roots of various kinds of plants. Sulphuring heated pipes in vineries will not kill thrips, and the fumes are injurious to newly set Grapes. Sponge the leaves with an insecticide before the insects increase, and you may prevent much after trouble and serious injury to the Vines.

Snowdrops and Daffodils under Oak Trees (C. N.).—The land cleared before the bulbs were planted should be kept free from the Nettles. They are best pulled up with a gloved hand, taking care not to draw the bulbs with the roots. The Nettles will injure and weaken the bulbs, smothering them, as the roots leave very little space for anything, and the tops appear in spring before the leaves of the bulbs have died down; hence they cannot thrive where Nettles grow strongly. The decay of the Nettle tops will not do the bulbs any good under the circumstances. They will, in fact, do them a great deal more harm than good if allowed to increase.

Fungus in a Mushroom Bed (F. G. R.).—We are of opinion that it is not practicable to apply anything to the bed strong enough to destroy the fungus that infests it without destroying or seriously injuring the Mushroom spawn also. The manure must have contained spores of the invader, and possibly was not sufficiently heated during fermentation before making the bed. You might try experimentally a solution of salt at the strength of 2 ozs. and upwards to the gallon of water. Twice that quantity of salt has been used, but we advise you to proceed cautiously and note the effects on a portion of the bed before giving a general application. Perhaps some of the larger clumps of the noxious fungus could be dug out, and if it "runs" close to the surface of the bed this could be removed, afterwards casing with a mixture of loam and fresh cow manure.

Vine Leaves Warded (W. M. L. M.).—The small warts on the under side of the leaves and corresponding depressions on the upper are caused by mites (*Phytoptus vitis*) now in the egg state. There are no larvæ at present discoverable in the blisters, but they will soon emerge, when they will feed on the tissue and cause it to become brown, more or less, and sometimes shrivel. The affection seldom does much harm. The leaves becoming brown or shrivelling should be destroyed by fire, and in the winter the Vines should be dressed with a solution of copperas, 1 lb. to a gallon of water, applying with a brush in the usual manner of winter dressings, collecting and burning all the leaves of the affected Vines as they fall, or preferably before. A dressing of sulphate of iron, quarter oz. per square yard, may also be given the border, but with care in destroying the affected leaves the injury will not proceed much farther.

Vine Foliage Flagging and Shrivelling (W. S. W.).—It is impossible to tell you "the cause of the foliage of Vines flagging every day and shrivelling up." We have known it arise from the grubs of the Vine and other beetles feeding on and destroying the roots as fast as produced, so that the Vines could not derive the needful nourishment. At another time we have known mites appear on the young growths and prevent their satisfactory development. At times the young shoots refuse to grow more than a few inches, then stop, some not even starting from the buds. It may arise from slime fungus, fungi proper, or nothing but from a soddened condition of the soil, or from unripe wood, or impaired growths brought about by the application of some substance in the previous seasons or winter. If the roots are quite healthy and the soil in good condition you may induce growth to start at the lower part of the stem by cutting the laterals to one joint or leaf and confining them to that, so that the dormant buds must start, if there be any, selecting the most promising of these and letting them grow according as you require canes, pinching the laterals to one leaf and sub-laterals, also to one leaf as made, you will soon get a good cane or canes of a yard or more long, when you may cut away the old rod or rods, and there will not be any bleeding, as the new growths appropriate the sap. If you cut the Vines down entirely, that is below all the leaves, it is likely they will bleed considerably, and the growth be late in starting, besides there would be a great loss of stored matter, weakening if not causing their collapse.

Figs Diseased (C. J.).—The leaves are large, quite clean, and of fair texture, but the footstalks are rather long, and the young wood is somewhat long jointed, the latter being nearly twice that in distance of the previous year. This indicates that the house has been kept close, moist, and warm. The wood of the current year is also lean as compared with last season's, which would be induced partly by the aforementioned conditions and partly by that of the soil. This is of a close soapy nature and very wet, otherwise an excellent staple for the growth of Figs. We mention these matters as possibly producing that condition of the fruit favourable for the development of the disease with which they are infested, and it would be well to bear the matter in mind for avoidance in the future. Perhaps the drainage of the border is defective. This should be attended to and rectified at the proper

time, when at least one-fifth of old mortar rubbish should be mixed with the soil, this being made quite firm. In the meanwhile keep the soil as dry as you can without distressing the foliage of the trees and the growths rather thin, admitting air freely on all favourable occasions, especially in the early part of the day. The fruits, which appear to be Brown Turkey, have safely passed the flowering stage and contain numbers of seeds quite clean and healthy, but at the upper part of the fruit some of the pericarps are discoloured and their substance destroyed. If you cut one open and examine it just within the "eye" you will see this destroyed and brown decaying matter, also that it extends inwards from the eye. Now, when this eye was open for flowering the spore of a fungus gained access, and the growths from that have produced the mischief. Later you will find that a spot appears on the apex of the fruit affected, something that develops outgrowths, and usually of a pink or salmon colour. This is the "spot" fungus (*Gæosporium læticolor*). You may dress the hot-water pipes lightly with a cream formed of flowers of sulphur and skim milk, the fumes from which are inimical to the fungus spores germinating, or put the sulphur in shallow vessels or saucers, just covering it with water and place in the house so that the sun can act directly upon them. In the winter the wall and trees may be washed with a solution of copperas (sulphate of iron), 1 lb. to a gallon of water, applying with a half-worn paint brush to the trees in a careful manner, but wetting every part, while for the wall form an ordinary whitewash consistence by the addition of quicklime. Burn all affected fruits. The smaller ones are not affected, and they will ripen if the fungus is kept at bay, ventilating freely, and providing otherwise suitable conditions for attaining the desired object.

African Palm Oil (*H. W. G.*).—The Palm oil of Africa is extracted from the tree called *Elais guineensis*. It is found throughout the whole of the east coast of Central Africa, whence it has been introduced to the West Indies and South America, where it is cultivated for its oil. The tree attains to the height of 30 feet. The leaves are 15 feet long, and their footstalks, for 4 feet below the leaflets, are armed with hooked spines. The flowers have a strong and peculiar smell, like aniseeds mixed with Chervil leaves. The fruit forms an immense head, consisting of a great number of bright orange-coloured drupes, having an oily pulp and a stone in the centre, and it is from these drupes that the oil is obtained. The fruit is first bruised in wooden mortars to a paste, and this paste is then boiled in water; a reddish or orange-coloured oil rises to the surface, and is removed after the whole has been allowed to cool. When fresh it has an agreeable odour of Violets, and an oily consistence; but as it is removed into cooler regions it acquires the solidity of butter. This oil is called ghea (butter) by the natives, and is universally employed by them as butter is in Europe, and with it they daily anoint their bodies. The quantity of Palm oil now imported to this country is enormous. It is employed in the manufacture of candles, toilet soaps, and common hard soaps; and very extensively in antifrictions for the wheels of railway carriages. Palm oil contains 31 of stearin, and 69 of olein. Besides this oil, which is also called Palm butter, there is another oil obtained from the nuts by expression; and by boiling these nuts the natives make an excellent Palm soup. The tree yields from its trunk an abundance of Palm wine.

Names of Fruits.—*Notice.*—We have pleasure in naming good typical fruits (when the names are discoverable) for the convenience of regular subscribers, who are the growers of such fruit, and not collectors of specimens from non-subscribers. This latter procedure is wholly irregular, and we trust that none of our readers will allow themselves to be made the mediums in infringing our rules. Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. *In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing.* The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. *They should be sent on the first indication of change towards ripening. Dessert Pears cannot be named in a hard green state.* (*Jack*).—The Apple is Northern Greening, also called the John Apple—a very useful variety. (*F. M.*).—Gooseberry Apple, one of the latest keepers of all.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*G. P.*).—1, *Ribes aureum*; 2, *Asparagus deflexus*. (*S. P. S.*).—*Cattleya Mendeli*. (*C. J. W.*).—1, *Saxifraga oppositifolia*; 2, *Sempervivum arboreum*; 3, *Kennedyia rubicunda*; 4, *Leptospermum scoparium*. (*M. E.*).—1, *Phlebodium aureum*; 2, *Cyrtomium falcatum*; 3, *Woodwardia radicans*; 4, *Pteris longifolia*; 5, *Asplenium biforme*; 6, *Adiantum pedatum*. (*N. O. M.*).—1, *Epimedium alpinum*; 2, *Cerasus padus* (Bird Cherry); 3, *Exochorda grandiflora*. (*M. J.*).—*Brachysema lanceolata*. (*J. H.*).—1, *Polygala Chamæbuxus*; 2, *P. Dalmaisisana*. (*P. H. J.*).—1, *Amelanchier Botryapium*; 2,

Ranunculus amplexicaulis; 3, *Phlox subulata*; 4, *Cardamine pratensis flore-pleno*; 5, *Corydalis nobilis*; 6, *Saxifraga (Megasea) crassifolia*. (*G. N. A.*)—A *Hæmanthus*, probably *cinnabarinus*. These plants are frequently grown in this country. (*G. H. T.*).—1, Specimen withered, possibly an *Amelanchier*, send fresh; 2, *Amelanchier Botryapium* (the Snowy Mespilus); 3, totally insufficient; 4, *Ophiopogon Jaburan variegatus*.

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, London, W.

COVENT GARDEN MARKET.—MAY 15TH.

TRADE steady, with full supplies.

FRUIT.							
	s.	d.	s. d.		s.	d.	s. d.
Apples, per half sieve ..	1	6	to 4 6	Obs, per 100 lbs. ..	10	0	to 0 0
" Nova Scotia, per barrel ..	10	0	21 0	Grapes, per lb. ..	1	6	4 0
" Tasmanian, per case ..	8	0	11 0	Lemons, case ..	10	0	15 0
Asparagus, English, per bundle ..	1	0	3 0	St. Michael Pines, each ..	2	0	6 0
				Strawberries, per lb. ..	1	0	4 0

VEGETABLES.							
	s.	d.	s. d.		s.	d.	s. d.
Beans, Kidney, per lb. ..	0	6	to 0 0	Mustard and Cress, punnet ..	0	2	to 0 0
Beet, Red, dozen ..	1	0	0 0	Onions, bushel ..	3	6	4 0
Carrots, bunch ..	0	3	0 4	Parsley, dozen bunches ..	2	0	3 0
Cauliflowers, dozen ..	3	0	6 0	Parsnips, dozen ..	1	0	0 6
Celery, bundle ..	1	0	1 3	Potatoes, per cwt. ..	2	0	4 0
Coleworts, dozen bunches ..	2	0	4 0	Salsafy, bundle ..	1	0	1 5
Cucumbers, dozen ..	1	6	3 6	Seakale, per basket ..	0	6	1 0
Endive, dozen ..	1	3	1 6	Scorzonera, bundle ..	1	6	0 0
Herbs, bunch ..	0	3	0 0	Shallots, per lb. ..	0	3	0 0
Leeks, bunch ..	0	2	0 0	Spinach, bushel ..	2	6	0 4
Lettuce, dozen ..	0	9	1 6	Tomatoes, per lb. ..	0	6	1 0
Mushrooms, punnet ..	0	9	1 0	Turnips, bunch ..	0	3	0 6

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.—Orchid Blooms in variety.							
	s.	d.	s. d.		s.	d.	s. d.
Arum Lilies, 12 blooms ..	2	0	to 4 0	Pelargoniums, 12 bunches ..	6	0	to 9 0
Azalea, dozen sprays ..	0	6	1 0	Primula (double), dozen ..	0	6	1 0
Asparagus Fern, per bunch ..	2	0	3 0	sprays ..	0	6	1 0
Bouvardias, bunch ..	0	6	1 0	Roses (indoor), dozen ..	0	6	1 0
Carnations, 12 blooms ..	2	0	3 0	" Tea, white, dozen ..	1	6	2 6
Daffodils, (dbl.), doz. bchs. ..	2	6	3 0	" Yellow, dozen (Niels) ..	3	0	6 0
" (single), doz. bchs. ..	3	0	4 0	" Safrano (English), ..	1	0	2 0
Eucharis, dozen ..	4	0	6 0	dozen ..	1	0	2 0
Gardenias, dozen ..	1	0	3 0	" Yellow, dozen blooms ..	1	6	2 0
Geranium, scarlet, doz. ..	4	0	6 0	" Red, dozen blooms ..	2	0	4 0
Lilac (English) per bunch ..	0	4	0 9	Smilax, per bunch ..	4	0	6 0
" (French) per bunch ..	3	0	4 0	Spiraea, dozen bunches ..	4	0	6 0
Lilium longiflorum, dozen ..	4	0	6 0	Stephanotis, dozen sprays ..	3	0	6 0
Marguerites, 12 bunches ..	1	6	3 0	Tuberose, 12 blooms ..	0	4	0 6
Maidenhair Fern, dozen ..	6	0	8 0	Violets (English), dozen ..	1	0	2 0
Orchids, dozen blooms ..	1	6	12 0	bunches ..	1	0	2 0
				Violets (French), bunches ..	1	0	2 0

PLANTS IN POTS.							
	s.	d.	s. d.		s.	d.	s. d.
Arbor Vitæ (golden) dozen ..	6	0	to 12 0	Genistas, per dozen ..	8	0	to 10 0
Aspidistra, dozen ..	18	0	36 0	Geraniums, Ivy, per dozen ..	4	0	8 0
Aspidistra, specimen plant ..	5	0	10 6	Heliotrope, per dozen ..	6	0	8 0
Azaleas, each ..	3	0	4 0	Lobelia, per dozen ..	4	0	6 0
Cinerarias, per doz. ..	8	0	10 0	Lycopodiums, dozen ..	3	0	4 0
Cyclamen, dozen ..	9	0	12 0	Marguerite Daisy, dozen ..	8	0	10 0
Dracæna, various, dozen ..	12	0	30 0	Myrtles, dozen ..	6	0	9 0
Dracæna viridis, dozen ..	9	0	18 0	Palms, in var. each ..	1	0	15 0
Erica, various, dozen ..	9	0	18 0	" (specimens) ..	21	0	63 0
Euonymus, var., dozen ..	6	0	18 0	Pelargoniums, per dozen ..	9	0	15 0
Evergreens, in var., dozen ..	6	0	24 0	" scarlets, per ..	3	0	6 0
Ferns, in variety, dozen ..	4	0	18 0	dozen ..	4	0	6 0
Ferns (small), per hundred ..	4	0	6 0	Rhodanthe, per dozen ..	8	0	24 0
Ficus elastica, each ..	1	0	7 0	Roses, per dozen ..	6	0	12 0
Foliage plants, var., each ..	2	0	10 0	Spiraea, per dozen ..	6	0	12 0



POOR LAND.

POOR Pasture was the title which we had in mind for this article before sitting down to write it, but a little consideration under the light of recent experience induced us to adopt the more comprehensive designation of Poor Land, as calculated to meet a more general want. If pasture is now difficult to manage, what are we to say of arable land, what are we to

do with it? There are two sides to every question, two points of view from which, in common fairness, land difficulties must be regarded, and while we are asked with persistent reiteration to "Pity the poor farmers," what, we ask, is to be done for the landlords, with rents reduced and with land thrown on their hands foul with weeds, exhausted of fertility—farmed out?

"I see little or no inducement to cultivate land at the present ruinous prices; farmers and landlords are bankrupt all round us," writes the agent of an East Anglian estate, in a letter which also tells of a farm in hand of some 400 acres, only 70 acres of which is in pasture; of a farmer giving up a farm of 600 acres next Michaelmas for another of only 130 acres, and so on. Well do we know from our own experience in the management of East Anglian farms how great are the difficulties, how severe the struggle to hold on at all. It is only because rents have come down by from one-half to two-thirds that tenants have been kept going. We suggested long ago a system of temporary pasture and co-operative butter factories instead of Wheat in order to effect a considerable reduction in the area of arable land, but our words were as nought to the corn farmers.

More hopeful, more elastic, altogether on a sounder basis is the agricultural situation in those districts where land is mainly in grass, but even there difficulties occur, and there is much to be done in the way of improvement. Here are one or two examples. Of certain farms which have recently been acquired by purchase to enlarge the bounds of an estate in the Midlands, one is being kept in hand till next Lady Day in view of placing the farmhouse and homestead in thorough repair, in repairing the sadly neglected fences and gates, and, most important of all, effecting a thorough renovation of the pastures. We may mention that there are four applicants for this farm; it is quite probable there will be more before we have done with it.

The late tenant's claim for tenant right was heavy on the score of improvement of pasture, which we found consisted in carting, and spreading on it a considerable quantity of road sidings. This idea of improvement is not at all in accordance with ours. We have given the whole of the pasture, both that reserved for hay and that for grazing, a dressing of chemical manure consisting of 2 cwt. of phosphates, 1 cwt. nitrates, and half cwt. potash per acre. This will give it a good start; it will be stocked with store cattle this season, and in September all the upland pasture will be folded with sheep.

It will then come to hand next Lady Day in a sound fertile condition, and it will be our aim to secure a really good tenant for it, who will continue to cultivate the pasture on the same sound principles. This example of practice should prove a valuable object lesson for the old tenants who have absolutely no system of pasture cultivation, have never set a sheep fold, nor purchased any manure. They trust to the excreta of grazing cattle, to natural fertility of soil, and very much indeed to the weather. In thinking over this matter it occurred to submit our scheme to Mr. Thomas Brown of King's Lynn, whose standing as an agricultural chemist is of the highest, and who has so long been conducting experiments with manures. He replied, "I cannot see in what direction I can improve on your proposition. By your means the most worn pasture would be restored."

On another estate in the same district we have a farm which fell in hand at Lady Day, of which about fifty acres are in plough. Of this two fields, which were fairly clean, have been laid down to grass with a crop of Oats, and a similar dressing of chemical manure to that already mentioned. A field of Wheat has had a dressing of 1 cwt. nitrate of soda per acre, and the remainder of the land is to have a summer fallow. Of this, one field is just a bed of Thistles, and the

remainder is so foul with couch grass that steam cultivation will be applied to the whole of it. We were at first inclined to take a crop of roots from the Thistle field, but it is such a bad case that we decided to seize the lucky chance to eradicate a pest which had evidently been trifled with for many years, or it never could have become so bad.

WORK ON THE HOME FARM.

Corn rolling has been pushed as the weather has been so favourable, grass seed being sown first on the spring corn where the land is going down either to temporary or permanent pasture. In this work we keep to the old plan of sowing the corn first and having the plant well above the surface before sowing the Grasses and Clovers in mixture, in order that the grass may not become so rampant as to prove very troublesome at harvest time. All land in fallow, whether with or without a root crop, has been kept well stirred, and couch fires have been kept going.

In our uncertain climate the only safe plan is to never miss a chance of pushing on such work, even at the expense of something else. The weed pest is one of the hindrances to successful farming that demands much more systematic treatment on the principle of prevention than it generally receives. It must surely be obvious that to wait till perennial weeds become strongly established on the land before grappling with them is as foolish as it is costly.

Give all possible attention to root and green crops so as to have an ample provision for a possible drouthy autumn as well as for next winter. Get forward with land intended for Green Maize, which is just one of those crops that must be sown neither too early nor too late. It is sensitive to frost, therefore do not sow till risk of harm to the young plant from cold is past, and then do not lose an hour. Generally, the end of May is regarded as the best time, and wherever it is found to answer—i.e., localities where there are four months without frost, it should be grown for the marvellous bulk of crop, for its nutritious properties, and because cattle are so fond of it.

See that there is no negligence about calves. Let all very young ones have milk at least three times daily, that others have plenty of nourishing food and are kept going in the best way without check of any sort. On bright warm days now we always have the forward calves out in the paddock, only taking care to get them into the yard or hovel early in the evening, and to keep them in altogether on the wet, cold days which occur at this season of the year. Careful feeding, no undue exposure, kindly, gentle treatment are the chief points in this work, which must have attention.

OUR LETTER BOX.

Value of Grass (W. L. H.).—The value of your five acres of grass to let for hay (and presumably for the aftermath as well) depends not only upon the quality of the land and condition of the grass now, but also upon local circumstances. If the land is really rich in fertility, and the herbage is exceptionally good—i.e., of vigorous growth, and really thick on the land, it may be worth from £2 to £3 per acre. But its value must also depend upon its surroundings. If such a crop is really in demand in your neighbourhood, and good pasture is at all scarce, then you might obtain the higher amount. In the Midlands, where so much of the land is in grass, the "keeping"—practically the same as the heavy crop and aftermath—is very cheap this season, for the simple reason that stock is dear and scarce, and there is a positive glut of keeping in the market. A lot of it was let by auction last week at from 12s. to 14s. per acre, and much of it was not let at all, not a bid being made for it.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1895.	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.		
May.											
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	5	30.362	53.6	47.2	N.E.	51.7	64.9	38.3	110.9	34.2	—
Monday ..	6	30.332	61.7	54.3	N.	51.0	73.4	43.2	117.1	39.1	—
Tuesday ..	7	30.257	61.2	51.8	N.E.	52.9	69.4	48.7	114.3	42.6	—
Wednesday ..	8	30.067	60.2	52.3	N.E.	53.7	70.3	45.6	112.9	40.2	—
Thursday ..	9	30.020	62.2	53.4	N.	54.2	75.4	43.2	113.8	38.2	—
Friday ..	10	30.144	57.7	50.3	W.	54.7	68.8	45.1	117.4	41.4	—
Saturday ..	11	30.221	59.9	52.1	N.W.	55.0	73.3	43.1	116.3	37.2	—
		30.200	59.5	51.6		53.3	70.8	43.9	114.7	39.0	—

REMARKS.

- 5th.—Bright early, frequently cloudy after 10 A.M.; brilliant night.
 6th.—Almost cloudless throughout.
 7th.—Almost cloudless throughout.
 8th.—Believed to be absolutely cloudless.
 9th.—Bright sunshine till 11 A.M., hazy after with detached cloud; threatening at times in afternoon, and spots of rain at 5.30 P.M. Solar halo at 6 P.M.
 10th.—Sunny almost throughout, but occasional cloud.
 11th.—Unbroken sunshine all day.
 Another fine week, and warm, but not unprecedentedly so.—G. J. SYMONS.

DICKSONS' NEW IRISH ROSES.

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Have pleasure in announcing for distribution in May a further series of their

CELEBRATED PEDIGREE ROSES,

HELEN KELLER (H.P.), Rosy Cerise, superb .. 10/6 each
MAVOURNEEN (H.P.), Silvery Flesh, first rate 10/6 ..
MARJORIE (H.T.), White, Pink centre, very pretty 7/6 ..

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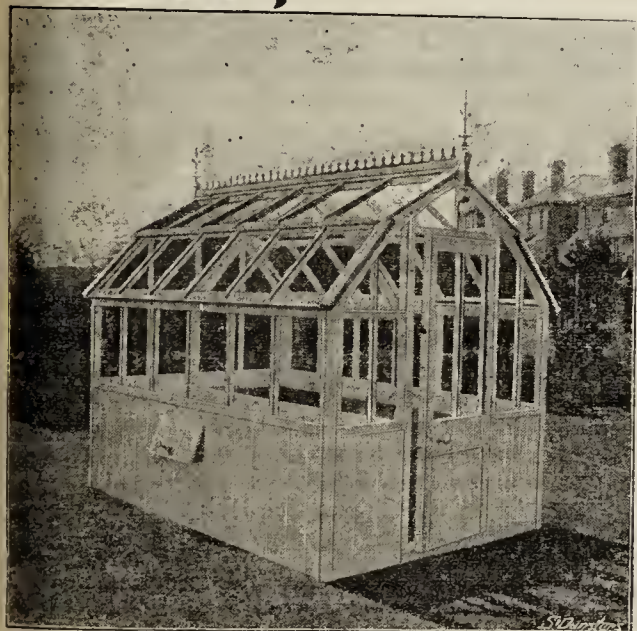
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" 15 ft., " " "	29 0 0	" " "	29 0 0

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The Selections we offer are composed exclusively of the dwarfest growing and finest leaved grasses, and form in a very short space of time a beautiful velvety turf of the finest texture and colour.

"The Bowling Green here which was prepared last October and sown with your *Lawn Seed* last April, was opened on Saturday, July 7th, and it gives me much pleasure to inform you that the turf and growth of seed far exceeded the expectations of the members of the Bowling Club. I have no hesitation in stating that sowing seed is far preferable to turfing new ground."—P. WILSON JONES, Esq., Newtown.

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Journal of Horticulture.

THURSDAY, MAY 23, 1895.

THE CHECK IN MAY.

WHEN the "Promise of May" was being written last week the sun was shining its hottest for the season, and pedestrians were seeking the grateful shade of trees and buildings. Many were the rejoicings and mutual congratulations that summer had come, and not a few of the comparatively young and sanguine were confident it had come to stay. Older heads were shaken in remembrance of more than one rude check having been given to their plants and trees by the sudden rising of the wave of cold which wrought disaster, and they felt, but scarcely liked to say so, that it would be sure to come before the month was out this year. Wise were those who were not tempted to remove their tender plants from where they could be protected, but the gentle note of warning sounded was not quite in time for all to consider whether they should halt or not. Here is a case in point which arrived with the above heading from the "The Missus."

"When I took up your Journal yesterday morning to enjoy with my breakfast coffee, I was forcibly reminded of 'Punch' some years ago—a little punning effort when 'F. May's' signature made Bank of England notes of value. Alas! that signature is of no such promise now, and alas! too, what of 1895 and this promise of May?"

"Wednesday, just as we finished planting four crescent beds with *Tropæolums*, a cold dull change in the atmosphere made us shiver after the days of 'cloudless beauty' and summer glow; the air felt decidedly nipping. By late evening the north wind rose. Thursday broke with dull skies and the wind still higher. All day it increased, and at times was accompanied with sharp, sleety showers! Oh, how bitter! How pinching the gale felt, and what fearful wreckage of our handsome Beech trees just in their early summer dress! The garden that had looked so trim and neat was strewn from end to end with leaves and small branches. The fine old Sycamore in the village street on the north side looked like some of the flags that adorn St. George's Chapel, Windsor; looked as though it had braved the battle as well as the breeze.

"Thursday night was still rough. Friday morning no better, and at noon a heavy steady rain set in, which from the state of the roads must have continued through the greater part of the night. This morning (Saturday) dawned dull and cold. The wind lulled, the rain uncertain whether to come or go. What the effect on the Apple trees will be no one can tell yet. It is possible the damage may not be so great as one expects, but at present everything is too wet for an investigation.

"Roses had made wonderful progress, but alas! the devastation is great; a cherished archway of climbing Roses is gone, but like the phoenix of old will arise from its own ashes—in other words, will grow from the bottom again. The weeping Rose is like a shorn lamb; but this subject is too wide, and I must leave it to 'D., Deal,' and clerical 'Raillem' to give us in their own good time words of hope and consolation."

The above letter embodies, we have no doubt, the experience of hundreds of persons; yet though the temperature fell in some cases nearly or quite 70° in thirty-six hours last week—namely, from over 120° in the sun to 32°, we are glad to think that nothing like the loss will be experienced that followed on the disastrous loss of last year, and "check" changes to "promise" once again—a promise of flowers in infinite variety and countless numbers.

We are on the eve of a great show. Huge marquees are erected within five minutes walk from Fleet Street. It is something to have a fine space of some 4 or 5 acres practically in the heart of the City, approached by the "finest promenade in Europe," parallel with the ancient and broad-breasted Thames. It is fortunate, too, that the Benchers of the Inner Temple Gardens permit their use by the Royal Horticultural Society once a year, in order that all which is newest and best in flowers and other garden produce may be displayed for the enjoyment of the thousands who will assemble to enjoy the feast. Fortunate also is it that a Royal lady has consented to open the exhibition—one who never fails to attract by her presence, and who wins more and more homage and affection as the years roll round—the Princess of Wales. Only a softening of the wind and clear skies, are needed to make the show now in preparation a brilliant success.

THE TEMPLE SHOW.

MAY 21ST, 22ND, AND 23RD.

ON Tuesday the wind softened, but the sky was not clear, nor was the popular Princess able to attend (unfortunately through indisposition), crowds of persons who assembled on the embankment being accordingly disappointed; but there could be no disappointment with the show, which from a floral point of view, is the richest and most extensive in the British Isles. It was thought that the weather, which of late has been so unfavourable, would have marred to a certain extent the beauty and completeness of the exhibition, but happily such was not the case. Readers well know the extent to which the exhibition has grown during the time that it has been in progress, and this year it was perhaps more beautiful than ever. We noticed an innovation, emanating from a suggestion of Mr. Newton (the able gardener at the Inner Temple) in the form of covering the long walk at the bottom of the gardens, and running parallel with the river. This idea was an excellent one in every way, and especially in the saving of the cherished lawn and the expense of several tons of boards for flooring.

It may be of interest to know how so much space was taken up, so we give the dimensions of the five principal marquees. The largest was 150 feet long by 60 feet broad; the next 120 feet by 40; No. 3, 170 by 28; No. 4, 150 by 28; and No. 5, 110 by 28, the figures being in each case approximate, and rather under than over the average. Despite this enormous provision it was found necessary to curtail the space allotted to almost every exhibitor, a proceeding that has nothing to commend it, and which should if possible be obviated on future occasions by a pre-arrangement of space. Unfortunately an exhibitor of some forty years' standing felt himself shut out by a misinterpretation of the conditions affecting duplicates, which it seems did not apply to varieties of plants but only to flowers in a cut state. This was a pity, because Mr. John Laing always exhibits well, and is said never to have been better prepared than on the present occasion.

Though essentially a flower show, fruits and vegetables were represented in fair numbers and high quality, but the other compartments comprising Orchids, greenhouse and stove plants, and hardy flowers took up by far the greatest amount of space.

As is usual on this occasion Orchids formed a most superb feature, being shown in little short of perfect condition: Arranged in the same tent as the Orchids were the Roses, than which nothing makes a brighter display, while passing on into other marquees we found glowing Begonias, charming foliage plants, elegant Ferns, softly hued Gloxinias, and in endless variety hardy plants and flowers, from modest alpine to the imposing Pæonies. Before turning to the general report, it may be worth while to point out that the exhibits were noted practically as staged, and not in order of merit, as the show was not competitive.

ORCHIDS.

As has been suggested, Orchids made an exceedingly beautiful display, being splendidly diversified; in fact, all the best now in flower were represented in one collection or another. Conspicuous on entering the large marquee was the superb arrangement of Messrs. F. Sander and Co., St. Albans, in which the blending of colours was tastefully carried out. It was impossible for us to name all the kinds staged, but a few of the best were *Cattleya nobilior*, Sander's variety; *C. Mossiæ* Prince of Wales, an exceedingly beautiful form; *C. Mossiæ*, *C. dolosa*; *Lælia purpurata* Princess of Wales, a variety worthy of its illustrious name; *Lælia purpurata*, in fine variety; *L. p. alba*; *Lælio-Cattleya Phœbe*, a charming bigeneric hybrid of beautiful colour; *Cypripedium Chamberlainianum*; *C. Lawrenceanum*, a grand example in a pan; *C. selligerum*; *Odontoglossum vexillarium* in great variety, and of which a spotted form named Princess of Wales was quite out of the common; *O. sceptrum*; *crispum*, in large numbers and of various forms, of which Florrie was amongst the best; *crispum xanthotes* (see woodcut, fig. 74), and *Duchess of York*. In addition to these were *Phaius*, *Dendrobiums*, *Oncidiums*, *Masdevallias*, *Sobralias*, and others of more particular botanical interest.

Mathew Wells, Esq., Broomfield, Sale, Manchester, staged a few Orchids of high quality, in which most noticeable was a plant of *Cattleya Mossiæ*, carrying handsome charmingly coloured flowers.

The group of Orchids shown by Mr. W. H. Young, gardener to Sir F. Wigan, Clare Lawn, East Sheen, was not extensive, but of great interest, and comprised some grand flowers. Very beautiful was a form of *Cattleya Mossiæ* named Lady Wigan, *C. Warneri*, *C. Schilleriana*, several *Mossiæ* and *Mendeli* varieties of merit, a big specimen of *Oncidium sphacelatum*, *Cypripedium Rothschildianum*, *C. Chamberlainianum*, *C. cymatodes*, *Odontoglossum polyxanthum* var. *grandiflora*, *O. vexillarium*, and *O. crispum* in variety. Charmingly staged was the exhibit of Mr. Davis, gardener to J. Gurney Fowler, Esq., Glebelands, South Woodford, and in which excellent culture was very conspicuous. Perhaps of the whole the *Cattleya Mossiæ* in variety were most noticeable, but the *Odontoglossum crispum* were equally good. Of the *Cypripediums* note was taken of *Lawrenceanum* *Hyeaenum* (in splendid condition), *grande*, *Lawrenceanum*, *bellatulum*, *ciliolare*, *bellatulum* *excellens*, *volanteanum*, and *Chamberlainianum*. *Epidendrum Wallisi* was singularly beautiful, as also was *Phalaenopsis amabilis*. Also highly creditable were *Lælia purpurata*, *Cattleya Mendeli*, *Masdevallias*, and others.

Messrs. B. S. Williams & Son, Upper Holloway, as might have been expected, showed in their very best form, and put up a group that attracted attention, as well for excellent arrangement as for high quality. An admirable centrepiece was formed with a plant of *Cymbidium Lowianum*, ranged on each side of which were large numbers of Orchids in variety. Special attention may be called to *Odontoglossums* *Alexandræ*, *Warneri*, *Lælia purpurata* *rupelliana*, *Cypripedium grande*, *Odontoglossum facetum*, *O. vexillarium* in variety, *O. polyxanthum*, *Dendrobium densiflorum*, *Vanda teres* *Andersoni*, *Cattleyas Mossiæ* in variety, *C. Mendeli* in variety, *Odontoglossum Alexandræ giganteum*, *Vanda suavis*, *Tricopilia crispa*, *Cypripedium Chamberlainianum*, *C. grande*, *Ada aurantiaca*, the colours of which formed a pleasing diversion, and numerous others of equal merit, but for which space cannot be found for individual mention.

From Baron Schöler, The Dell, Egham, came an almost perfect exhibit—in fact, just such an one as was anticipated from this source. The arrangement was as good as the flowers, and the use of small Ferns aided much in the improvement of the display. The *Odontoglossums* were superb, especially of the *crispum* section, in which were noticed *Bonnyanum*, *apiatum*, *xanthotes* (fig. 74), *Wilckeanum*, and *giganteum*, while other *Odontoglossums* included *excellens*, *vexillarium* *Pescatorei*, *cuspidatum* *xanthodon*, *luteo-purpureum*, *polyxanthum*, and others. A plant of *Masdevallia nycteryna* carrying extraordinary numbers of flowers was conspicuous. The *Vanda teres* staged here were superb, as also were the *Cattleyas*, of which *Mossiæ* and *Mendeli* were very showy. A plant of *Skinneri* and another of *Skinneri alba* attracted attention, as also did the many *Cypripediums*, *Masdevallias*, *Vanda suavis*, *Epidendrum*, and *Lælia purpurata* in variety.

The arrangement of Mr. W. White, grower to Sir Trevor Lawrence, Burford Lodge, Dorking, was particularly noteworthy for high quality, in which respect nothing was lacking. Delicately beautiful was *Lælia majalis*, while *Cypripedium Stonei platyænum* was conspicuous for magnificent blooms and excellent culture. Shown with this were blooms of the type, the difference being very marked. Other plants were *Masdevallia Shuttryana*, *M. Veitchi*, *M. Harryana lateritia*, *Cypripedium Elliottianum*, *Cymbidium Lowianum viride*, *Cattleya citrina*, *Vanda Dennisoniana*, *Odontoglossum citrosum*,

Cattleya Mossiæ Wagener's var., *Odontoglossum vexillarium*, *Epidendrum Stamfordianum*, *Dendrobium Bensoniæ*, *Aërides Fieldingi*, *Lælia purpurata* in variety, and very many others.

Odontoglossums were the feature in the arrangement of Mr. D. Masterton, gardener to Welbore S. Ellis, Esq., Hazelbourne, Dorking, high quality being combined here with good numbers. Crispums and Alexandræ were extremely diversified, as also were the vexillariums. Others seen were *Coradenei*, *cordatum*, *Pescatorei*, and *citrosimum* (small). Added to these were *Cattleya Mossiæ*, *C. gigas*, *C. Mendeli*, *Cypripedium bellatulum*, *C. Chamberlainianum*, and a few other kinds.

Mr. G. Wythes, gardener to Earl Percy, Syon House, Brentford, sent Orchids which, intermingled with Ferns and Palms, produced a very charming effect. Amongst these Orchids were *Cypripedium barbatum*, *Cattleya Mossiæ* in variety, *C. Skinneri*, *Cymbidium Lowianum*, *Lælia purpurata*, *Odontoglossum cordatum*, *O. Alexandræ*, and numerous others.

Mr. Jules Hye, Leysen, sent a plant of a superb *Cattleya Lawrenceana* named *atro-rubens*, which was deservedly accorded an award of merit. From the same source came *Miltonia Bleuiana virginalis*, first-class certificate; *Cypripedium Lawrenceanum* *Hyeanum superbum*, *Lælio-Cattleya Hippolyta*, and *Miltonia vexillaria gigantea*.

Mr. Ch. Vuylsteke, Belgium, was represented by a plant of *Odontoglossum Pescatorei* *La Perfection*, which received an award of merit, a few others also being shown by this exhibitor. Mr. J. Cliffe, gardener to H. Shaw, Esq., Ashton-under-Lyne, sent *Odontoglossum Shawianum*, *Cypripedium Victoria Maria*, and a fine plant of *Dendrobium Dalhousianum*. Mr. J. Prewett, Hammersmith, staged a hybrid *Cypripedium* that was, however, passed by the Committee, and Thos. Statter, Esq., Stand Hall, Manchester, exhibited an example of *Odontoglossum Johnsoni* carrying a magnificent spike.

Small but interesting was the exhibit of Mr. W. Buckwell, gardener to M. S. Cooke, Esq., Kingston Hill, S.W. It was composed of *Odontoglossums*, *Masdevallias*, *Cattleyas*, *Epidendrums*, and others, all in variety and good condition.

In the smaller Orchid tent Messrs. W. L. Lewis & Co., Southgate, were in strong force with a very handsome arrangement of superb Orchids. In this *Cattleyas* of the *Mossiæ* section were excellent and extremely varied, comprising many of the best forms in commerce. *C. Mendelis* were also seen, and in almost equal numbers, such again being the case with *Lælia purpurata*. *Odontoglossums* were very beautiful, and included *crispum*, *vexillarium*, and numerous others. *Cypripediums* in grand condition were particularly noticeable, as also were splendidly grown *Oncidium*s. For *Lælia purpurata Bella* this firm received an award of merit.

Mr. J. Cypher's arrangement was very imposing, and in every way highly creditable to this Cheltenham house. The plants plainly denoted splendid culture, and were carrying flowers of perfect colour, form, and substance. *Lælia purpurata* in variety somewhat preponderated, but *Cattleyas Mossiæ* and *Mendeli* were also superbly shown. *Odontoglossums*, *Dendrobiums*, *Cypripediums*, *Masdevallias*, and *Ada aurantiaca* contributed much to the general effect.

One of the most showy of the exhibits in the Orchid section was arranged by Messrs. H. Low & Co., Clapton, and occupied a large amount of tabling. *Cattleya Mossiæ* were exceptionally fine and extremely varied, as also were those of the *Mendeli* type. Of the latter section was a variety named *grandis*, and for which an award of merit was accorded. A like honour was adjudged to an *Odontoglossum* from which the name had been removed. *Cypripediums* were also to be seen in good condition, besides which were *Odontoglossums*, *Dendrobiums*, and many other kinds.

Messrs. Charlesworth & Co., Orchid growers, Heaton, Bradford, contributed an extremely chaste and diversified collection, in which *Lælia purpurata* in variety were particularly bright. *Cypripedium Elliottianum*, *C. bellatulum*, *C. caudatum*, *Odontoglossums*, *Cattleyas*, and *Dendrobiums* were also very conspicuous.

ROSES.

A magnificent group of Roses in pots was exhibited by Messrs. Wm. Paul & Son, Waltham Cross, who also showed fine stands of cut blooms. The healthy condition and excellent flowers of the former gave ample evidence of high culture, as with no exception they were crowned with blooms. Amongst many splendid varieties were noted *Clare Jacquier*, *Madame C. Guinnoiseau*, *Caroline Testout*, *Danemark*, *White Lady*, *Corinna*, *Perle des Jardins*, *Clio*, *Madame de Watteville*, *Duchess of Albany*, *Duke of York*, *William Allan Richardson*, *Crimson Queen*, *Madame Montet*, *Crown Prince*, and several plants of the fine Tea Rose *Enchantress*. Amongst the cut blooms which added much to the beauty of the display were *Jeannie Dickson*, *Perle des Jardins*, *Spenser*,

Niphetos, *Duke of Teck*, *Dr. Andry*, *Grace Darling*, *Crimson Queen*, *Victor Verdier*, *Mrs. John Laing*, *Corinna*, *White Lady*, *Lady Henry Grosvenor*, *La France*, *Margaret Dickson*, *Marie Van Houtte*, and *L'Idéal*.

An excellent collection of Roses was exhibited by Mr. C. Turner, Slough, amongst which fine plants of the bright and well-known *Crimson Rambler* played a conspicuous part, the extreme beauty of this variety being shown in well-flowered examples of bushes and standards. It must not be thought, however, that this was the only one worthy of note, as all others were of an equally high order of merit, and consisted of well-flowered plants of *Margaret Dickson*, *La France*, *Juno*, *Mrs. J. Laing*, *Maréchal Niel*, *Edward Morren*, *Céline Forestier*, *Ulrich Brunner*, *Edith Gifford*, *Madame Lacharme*, *William Allan Richardson*, *Camille Bernardin*, *Dr. Andre*, *Mrs. Paul*, *Madame Victor Verdier*, *Madame Lacharme*, together with several others of quality by no means inferior.

Messrs. Paul & Son, Cheshunt, were also represented with a fine group of plants, all well grown, and crowned with large and well-formed blooms in great variety. Chiefly conspicuous in the exhibit were *Maréchal Niel*, *Mrs. Paul*, *Catherine Soupert*, *Captain Hayward*, *Paul's Early Blush*, *Merveille de Lyon*, *William Warden*, *Turner's Crimson Rambler*, *Paul's Carmine Pillar*, *La France*, *Margaret Dickson*, *François Levet*,



FIG. 74.—ODONTOGLOSSUM CRISPUM XANTHOTES.

Captain Hayward, *Edouard Morren*, *Ulrich Brunner*, *Violette Bouyer*, *Elise Finger*, *Etoile de Lyon*, together with many others. The whole was staged in one corner of the large tent, and it is needless to add formed a very conspicuous object.

A somewhat smaller but equally superb group of Roses was exhibited by Messrs. Geo. Jackman & Son, Woking, Surrey. The plants were trained as dwarf specimens, and comprised amongst other varieties well grown plants of *Céline Forestier*, *Duchesse de Morny*, *Turner's Crimson Rambler*, *Madame Lacharme*, *Anna Alexieff*, *Comtesse de Serenye*, *John Hopper*, *Alfred Colomb*, *Magna Charta*, and *Merveille de Lyon*, many of which were carrying an exceedingly large number of fine blooms.

A pleasing spectacle at the entrance of one of the tents was a small but exceedingly pretty group of Roses in pots, exhibited by Mr. Frank Cant, Colchester. The flowers were good and in kinds varied, chief amongst them being *La France*, *Margaret Dickson*, *Caroline Testout*, *Ulrich Brunner*, *Jeannie Dickson*, *Marchioness of Londonderry*, *Dr. Andry*, *Duke of Teck*, *Mrs. Paul*, *John Bright*, *Duke of Edinburgh*, *Merveille de Lyon*, *Mrs. John Laing*, *Star of Waltham*, *Madame George Paul*, *Duke of Connaught*, *Fisher Holmes*, *Duchesse de Morny*, and *Captain Christy*.

Mr. W. Rumsey, Waltham Cross, exhibited a fine collection of Roses, both in pots and as cut blooms. Amongst the former were well flowered plants of *The Queen*, *Miss Hassard*, *Magna Charta*, *Crimson Rambler* and *Niphetos*, and of the latter *Maréchal Niel* and *Niphetos* were exceedingly fine.

Mr. George Mount, Canterbury, staged a superb collection of cut Roses, comprised of varieties *Baroness Rothschild*, *Catherine Mermet*, *Mrs. John Laing*, *The Bride*, *La France*, *Lady Mary Fitzwilliam*, and others, all of which were very creditable.

PLANTS AND FLOWERS.

At the entrance of the large tent was a fine display of flowering and foliage plants, exhibited by Messrs. W. Cutbush & Sons, Highgate. Several large Palms formed a background to the group, which was made up of large plants of *Azalea mollis*, *Hydrangea* Thomas Hogg, *Leschenaultia biloba* major, together with healthy plants of *Souvenir de la Malmaison* Carnation, crowned with magnificent blooms. No less fine were a number of plants of the border Carnation Countess, with its graceful habit and large pure white flowers, whilst the ever popular *Uriah Pike* was very conspicuous in the exhibit.

For taste and gracefulness in arrangement and general excellent quality of the plants a high word of praise is due to Messrs. Wills and Segar, South Kensington, for the artistic group of foliage plants exhibited by this firm. The orthodox sameness which generally characterises such displays was done away with, and the whole arranged so as to make a pleasing effect. Amongst others, were noticed the following plants:—*Anthurium crystallinum*, *Kentia Belmoreana* variegata, *Dracaena Bergmanni*, *D. Lindenii*, *D. Goldieana*, *Zingiber variegata*, *Alocasia intermedia* and *Phrynium Thibautianum* variegatum, *Asparagus tenuissimus* and *plumosus nanus*, together with *Seaforthia elegans*, *Phoenix rupicola*, *Cocos Weddelliana*, *Leucostegia immersa*, and *Thrinax elegans*. Messrs. J. Waterer & Sons, Bagshot, were in evidence with *Rhododendrons*, the plants being in pots and forming a bright and effective display with their large flowers of many colours. Amongst others were noticed *Princess of Wales*, *John Waterer*, *album elegans*, *Mrs. John Clutton*, *Duchess of Edinburgh*, *Minnie*, *Lady Howe*, *Mrs. Tritton*, *Charlie Waterer*, *Duchess of Bedford*, *Chionoides*, *Sir Henry Mildmay*, *Francis B. Hayes*, *Kate Waterer*, *H. W. Sargent*, and *Marchioness of Lansdowne*. The same firm also exhibited a fine group of *Acers* in pots, their bright and varied forms of foliage being very pleasing. Conspicuous in the group were *Acer palmatum roseum marginatum*, *A. palmatum dissectum ornatum*, and *A. palmatum tricolor*.

A bright and diffusive display of trained *Azaleas* came from Mr. Charles Turner, Slough, the plants in their somewhat stiffly trained forms being covered with bloom, and composed of such varieties as *Princess S. Clotilde*, *Lively*, *Duchesse A. de Nassau*, *Madeline*, *Grandis*, *Charmer*, and *Madame Van Houtte*. Messrs. John Peed & Sons, Norwood Road, London, exhibited a magnificent group of *Caladiums*, the plants being exceedingly fine and varied in colour. The whole were tastefully arranged with a groundwork of *Maidenhair Fern*, and amongst other varieties were noticed splendid specimens of *Princess of Teck*, *Ibis Rose*, *Lillie Burke*, *Rose Laing*, *La Lorraine*, *Raymond Lemoine*, *Comtesse de Brosse*, *B. S. Williams*, *Madame Alfred Magre*, *Gaston Chandon*, *Excellent*, *Princess Royal*, *Clio*, *candidum*, *Marie Freeman*, *Charlemagne*, *John Peed*, and *John Laing*.

Large trained plants of *Clematises* were exhibited by Messrs. Richard Smith & Co., Worcester, the size of blooms and healthy appearance of which gave ample evidence that the examples were rapidly nearing perfection. Amongst the varieties *Madame Van Houtte* was very effective, with its large white flowers; *Lucy Lemoine*, a pretty double of the same colour, and no less merit; while *Belle of Woking*, *Excelsior*, *Venus Victrix*, *Fairy Queen*, *Beauty of Worcester*, *Lord Derby*, *Sensation*, and *Princess of Wales* were also worthy of honourable mention. One corner of the large tent was filled with a fine group of foliage and flowering plants, exhibited by Mr. W. Iceton, Putney. The Palms and *Dracenas* were large, and presented a healthy appearance, whilst amongst the blooming section were noticed *Lilium Harrisii*, *Tuberose* in fine form, together with *Ericas* and *Saxifragas*, tastefully bordered with the variegated foliage of diminutive *Caladiums*.

A magnificent group of *Malmaison Carnations* was shown by Mr. Jennings, gardener to L. de Rothschild, Esq., Ascott, many of the flowers being of enormous size, whilst the foliage was vigorous and gave every indication of perfection in health. This exhibit of its kind was one of the features of the show.

An attractive group of *Cannas* was exhibited by Messrs. Paul and Sons, Cheshunt, amongst other bright flowers being noticed *Phalenos*, *Cheshunt Yellow*, *Cousin Jacob*, *President Chandre*, *Comet*, and *Antoine Barton*.

Caladiums in splendid form and variety were exhibited by Messrs. J. Veitch & Sons, Chelsea, the plants being remarkably fine and displaying several different shades of colour. Amongst many others, all of which were striking, were noticed *Raymond Lemoine*, *Excellent*, *Ibis Rose*, *Madame Alfred Magre*, *Ladas*, *F. W. Moore*, *Madame Leon Say*, *Duke of York*, *Henry Irving*, *Tennyson*, *Lord Derby*, *Chelsea Gem*, *Lord Rosebery*, and *Duchess of York*. Of a no less order of excellence in their particular section was a fine group of hardy flowering plants exhibited by the same firm, and composed chiefly of *Azalea rosæflora*, *Azalea mollis* *Anthony Koster*, *Hydrangea paniculata grandiflora*, *Lilium Harrisii*, *Clethra alnifolia*, *Pæonias* *Montan* and *Elizabeth*, *Genista tinctoria*, *Azalea rustica virgile*, *Cytisus scoparius grandiflorus* and *C. purpureum*, *Olearia* *Gunni*, and *Spiræa astilboides*, together with *Acers* in variety and other foliage plants.

A striking feature in the show was the group of plants exhibited by Messrs. W. Balchin & Sons, Brighton, amongst which a large number of plants of *Leschenaultia biloba* major stood out in pleasing conspicuousness, the clear blue flowers of which were exceedingly effective. Other plants in the exhibit were *Erica perspicua nana*, *E. coccinea minor*, together with well-flowered plants of *Boronia serrulata* and *heterophylla*, and the pretty variegated *Coprosma Baueriana* variegata.

Messrs. W. Fromow & Sons, Chiswick, exhibited an effective group

of *Acers* in pots interspersed with plants of *Lilium Harrisii*. Amongst the former were good plants of *A. palmatum roseum marginatum*, *A. palmatum dissectum ornatum*, *A. japonicum laciniatum*, *A. palmatum variegatum*, and many others of these pretty ornamental plants.

Worthy of high praise was the group of *Pelargoniums* exhibited by Mr. Chas. Turner, the plants being of extraordinary size, and thickly covered with flowers. Very bright, and of great variety in colour, were the following varieties—*Prince Leopold*, *Lady Carrington*, *East Lynn*, *Spotted Beauty*, *Joe*, *Ambassadors*, *Blue Beard*, *Iona*, *Gold Mine*, *Statesman*, *Edward Perkins*, *Princess of Teck*, *The Shah*, *Duke of Norfolk*, *delicatum*, *Duchess of York*, and *Maggie*.

Another magnificent display of *Pelargoniums* was that of Mr. H. J. Jones, Lewisham, his plants giving abundant evidence that they had been thoroughly well grown, as in addition to these being large the flowers were of excellent substance, also bright and varied in colour. Amongst others the following kinds were particularly effective:—*Princess May*, *Mrs. W. Wright*, *Dark Chinese*, *Edward Perkins*, *James Douglas*, *Pearl*, *Lady Isabel*, *Duke of Portland*, *Mrs. H. M. Stanley*, *Maggie*, *Rose Queen*, *Rosebud*, *May Queen*, *Mrs. H. J. Jones*, and *Eucharis*. *Begonias* were also well and pleasingly shown by the same firm, the plants with their bright and distinct flowers being artistically interspersed with *Ferns* and small *Palms*. Conspicuous amongst many other varieties were excellent blooms of *Redcap*, *Magnet*, *Golden Queen*, *Mrs. R. Hoffman*, *Florence Pearce*, *Mrs. E. Beckett*, *nigra*, *Jealousy*, *Exquisite*, *delicatum*, *Starlight*, and *Dr. Shaw*. Ivy-leaved *Pelargoniums* were shown in excellent form by the same firm, the plants of many different varieties being thickly clothed with bloom. Amongst many others were noticed *Distinction*, *La France*, *Ryecroft Surprise*, *Isadore Feral*, *Surcouf*, *Liberty*, *Cuvier*, *Jersey Beauty*, *Beauty of Castle Hill*, *La France*, *H. Cannell*, and *Percy Surman*.

Mr. T. S. Ware, Tottenham, staged an exquisite group of double and single *Begonias*. The display formed by them was particularly striking, and formed a diffusion of colouring that was almost bewildering. It would be difficult to describe the many beautiful specimens staged; amongst a host of others were noticed *Duchess of Teck*, *Golden Empress*, *Moravia*, *Miss Jennie Fell*, *Beauty of Belgrove*, *Victory*, *Snowdon*, *Bexley White*, *Fairy*, *Bexley Gem*, *Leviathan*, *Viscountess Cranbrook*, *Claribel*, *Maid of Kent*, *Miss Emily Childs*, *Dean Swift*, *Empress of India*, *Duke of Teck*, *Pride of Bexley*, *Lord Byron*, *Samuel Pope*, *Princess of Wales*, *Sir Thomas Acland*, *Beauty*, *marginata*, *Zanda*, *alba magna*, *white Camellia Challenger*, and *Picotee*.

An excellent group of *Caladiums* was staged by Mr. Hunt, gardener to P. Ralli, Esq., Ashted Park, Epsom. The plants were exceedingly well grown, the foliage being large and effective, while in distinctness of variety they were all that could be desired.

A magnificent group of *Calceolarias* was staged by Messrs. J. James and Son, Farnham Royal, Slough. The plants displayed a high condition of cultivation, the colours being exceedingly delicate and diversified. Messrs. Collins Bros., Waterloo Road, sent plants of *Carnation Jane Collins*, a good yellow variety, but unfortunately destitute of scent. A fine group of *Pelargonium Glory* of the West was staged by Mr. W. J. Godfrey, Exmouth—an excellent decorative variety, and its good qualities were well displayed in the group.

Tricolor Pelargonium Duchess of York, which received an award of merit, was sent by Mr. J. Prewett, Hammersmith. Mr. Empson, gardener to Mrs. Wingfield, Amptill, sent plants of *Dracenas ducetti* and *australis variegata*.

Messrs. F. Sander & Co. staged a large collection of rare plants, many of which were particularly fine. Amongst others were noticed the *Rex* hybrid *Begonia Sander's Masterpiece* (award of merit), and *B. Rajah*, *Dracæna Sanderiana*, *Begonia Lady Annesley* (award of merit), *Heliconia illustris rubricaulis*, *Nepenthes* in variety, and also *Anthurium Andreanum* in variety, together with *Dracæna Godseffiana* (first-class certificate), *Sonerilas ornata* and Mr. H. Walters, and *Arisæmas* in variety.

A charming display of hardy alpine flowers was exhibited by Messrs. Paul & Son, Cheshunt; the flowers were tastefully arranged on a diminutive rockwork made especially for them, and which showed them up to advantage. Amongst others were noticed *Aubrietias* in variety, *Phlox frondosa*, *Androsace sarmentosa*, *Phlox stellaria*, and *P. G. F. Wilson*, *Silene pusilla*, *Geum miniatum*, *Potentilla rupestris*, and *Saxifraga muscoides purpurea*.

Messrs. G. Jackman & Son, Woking Nursery, sent half a dozen splendidly grown plants of new *Clematises*, including *Countess of Onslow*, *Sir Trevor Lawrence*, *Duchess of York*, *Grace Darling*, *Duchess of Albany*, and *Crimson Beauty*.

Messrs. H. Cannell & Sons, Swanley, sent a remarkably interesting exhibit, comprising splendid *Gloxinias* in named varieties, and amongst which *Princess of Wales* was prominent, receiving an award of merit. These were charmingly interspersed with *Ferns*. *Cannas* were also shown by the same firm, but the effect was somewhat marred by the stiff arrangement. *Begonias* from Swanley also made a brilliant display, and amongst the best of which were *Lady Carter*, *Mary Cornhill*, *Miss Fisher*, *W. Marshall*, *Mrs. C. West*, *Mrs. Jenkins*, *Lord Rosebery*, *Lady Whitehead*, and *Miss E. Clarke*.

Messrs. James Veitch & Sons staged a superb collection of *Streptocarpus* or *Cape Primroses*. The plants were well covered with bloom, and displayed many very brilliant colours. *Gloxinias* were well shown by the same firm, very distinct and of excellent substance, composed chiefly of varieties *Duchess of Connaught*, *Sidonie*, *Brilliant*, *Radiance*,

Irma, Mars, Cicely, and Clarinda. In the same exhibit flowers of hybrid *Phyllocactus* claimed attention, as also did a group of cut hardy flowers, amongst which were *Pyrethrums* *Dorotheus* and *Princess of Wales*, *Irises germanica*, *tolmiana*, and *florentina*. Darwin Tulips in great variety were included, together with many charming *Dodecatheons*—namely, *D. maximus*, *D. Media*, *Premier Gladstone*, and others. Ferns also claimed attention, the firm staging well grown plants of *Lastrea atrata variegata*, *Adiantum Lambertianum* and *A. Weigandi*, *Osmunda japonica corymbifera*, *Davallia fijiensis*, *Pteris reginae*, *Adiantum macrophyllum albo-striatum*, and *Davallia elegans polydactyla*, together with many others, all of which presented a healthy appearance.

Mr. Whillans, gardener to Duke of Marlborough, sent plants of a new seedling perpetual flowering *Carnation Blenheim Beauty*; the flowers are of enormous size, and prettily marked, but unfortunately devoid of the scent which makes these flowers so popular. Mr. T. S. Ware staged a very varied collection of hardy flowers, comprising *Spiræa plumosa*, *S. japonica*, *Phlox canadensis* (fig. 80, page 457), *Lilium longiflorum*, *Pæonies*, *Thermopsis montana*, *Trollius asiaticus*, *Iris florentinus*, *Heuchera sanguinea*, *Iberis Garexiana*, *Aquilegias*, *Saxifragas*, and many others. From Messrs. W. Cutbush & Son, Highgate, came flowers in variety. These were arranged on a long table, and the effect was admirable. Most prominent in this exhibit were superb flowers of *Malmaison Carnations*, rich both in colour and scent; *Spiræas*, seedling *Carnations*, *Lychnis dioica rubra plena*, *Dielytra spectabilis*, *Pæonies*, *Ranunculuses*, *Saxifragas*, *Choisya ternata*, *Heuchera sanguinea*, *Trollius*, *Lupines*, and some charming hardy *Primulas*.

Mr. J. R. Box, Croydon, also showed hardy flowers in great variety, and of high quality. These were well arranged, and each kind showed up to advantage. Conspicuous in this exhibit was *Houstonia coerulea*, *Menyanthes trifoliata*, *Saxifraga granulata flore-pleno*, *Iceland Poppies*, *Aquilegias*, *Doronicums*, *Ranunculus acris fl.-pl.*, *Arisæma protoscedum*, *Heuchera sanguinea*, *Pyrethrums*, *Androsace sarmentosa*, *Irises*, *Cornus canadensis*, and *Carnations* *Uriah Pike*, *Blush Malmaison*, *Mrs. Leopold de Rothschild*, *Germania*, and *Gloire de Nancy*. Hardy flowers from Mr. B. Ladhams, Sairley, Southampton, were very charming and greatly diversified. *Aquilegias*, *Trollius*, *Centaureas*, *Aponogeton distachyon*, *Pyrethrums*, *Achilleas*, *Primula japonica fl.-pl.*, *Pæonies*, *Lilacs*, *Geums*, *Heuchera sanguinea*, *Irises*, *Anthericum*, *Thermopsis fabaca*, *Doronicums*, and *Pink Ernest Ladhams*.

Pæonies were sent by Messrs. Kelway & Son, Langport, in first-class condition, and comprised both single and double varieties. From the same firm also came single *Pyrethrums* and glowing *Cannas*, with softly tinted *Irises* for variety. *Aquilegia coerulea* from Langport was also good, and the same may be said of the *Lupines* and other flowers from the same source. *Carnation Uriah Pike* in good condition was exhibited by Mr. James Pike, Park Road Nurseries, Acton, and which attracted much attention.

A most artistic display of hardy alpine flowers was exhibited by Messrs. J. Backhouse & Son, York. The diminutive blooms looked perfectly natural peeping out from the crevices of sandstone, in which they had been distributed with great taste. Amongst a host of these charming plants were *Alyssum alpestre*, *Gentiana verna*, *Dianthus calizonus*, *Linum alpinum*, *Saxifraga valdensis*, *Veronica prostrata*, *Globularia nana alba*, *Phlox subulata compacta*, *Primula auricula marginata*, *Silene acaulis*, and *Genista pilosa*. *Cactuses* in flower were also exhibited by the same firm, as was a large case of Ferns containing many exquisite varieties, including *Trichomanes exsectum*, *Hymenophyllum cruentum*, *H. obtusatum*, *H. crispatum*, *H. flexuosum*, and *H. candiculatum*. Especially worthy of mention were pans of the elegant little *Sibthorpia europæa aurea* (award of merit), with its pretty drooping habit. *Orchids* and *Azaleas* also came from this firm.

Viola blooms were exhibited in great variety and pleasing form by Messrs. Dobbie & Co., Rothsay, and considering the flowers had travelled from Scotland they were very fresh. Amongst numbers of others *Miss Gibbon*, a recent addition, is worthy of mention, being of a very delicate shade. In the older varieties were noticed *Lilac Langtry*, *Duchess of Fife*, *Countess of Hopetown*, *Peter Barr*, *Ravenswood*, *Cherry Park*, *Laverock*, *Columbine*, *Gipsy Queen*. Amongst the fancy *Pansies* were *Ceres*, *Madge*, *George Anderson*, *Neil McKay*, *Wm. Ross*, and *Pilrig*, together with several others of almost equal merit.

Messrs. Paul & Son, Cheshunt, staged an effective collection of hardy flowers, which were very striking, amongst others being *Doronicum plantagineum excelsum*, *Pyrethrum Ceres* and *Ne Plus Ultra*, *Centaurea montana sulphurea*, *Ranunculus acris plena*, *Thalictrum aquilegifolium roseum*, *Centaurea montana* and *C. montana alba*, *Geum miniatum*, *Spiræa confusa*, *Pyrethrum Perfection* and others. Very effective in the group were *Lilac* flowers in variety, double and single. Among the former *Madame Lemoine* is a fine double white, and of the latter *Souvenir de Louis Spathe* is a splendid variety.

Mr. M. Prichard, Christchurch, Hants, sent hardy flowers in variety, including good examples of double and single *Pyrethrums*, *Aquilegias*, *Phlox amœna*, *Polemoniums*, *Irises*, *Lupins*, *Scillas*, *Narcissi*, *Trollius*, *Geums*, *Pæonies*, *Eurybias*, *Ranunculuses*, *Euphorbias*, *Hemerocallis*, *Euonymus*, *Thermopsis montana*, and others.

Very beautiful indeed were the *Primula Sieboldi Pluto*, *P. S. Prella*, and others staged by Messrs. Barr & Son, King Street, Covent Garden. *Irises*, light and dark, large and small, also came from this source, and the single *Pæonies* in the exhibit were amongst the most gorgeous in the show. *Thalictrums*, *Liliums*, *Lychnis*, *Iberis*, *Pyrethrums*, *Geums*, *Gladioli*, *Scillas*, *Sweet Peas*, *Violas*, brightly coloured and quaintly formed *Parrot Tulips*, chaste *Darwins*, and singularly beautiful *florists'*

or *English Tulips* also lent valuable aid in forming variety in this exhibit.

Messrs. J. Carter & Co., High Holborn, staged a very choice selection of hardy flowers, in which *Doronicums*, *Liliums*, *Parrot Tulips*, *Irises*, *Saxifragas*, *Anemones*, *Violas*, *Gladioli*, *Narcissi*, *Lupines*, hardy *Primulas*, *Pæonies*, *Geums*, and numerous others were very noticeable.

On each side of the entrance to one of the marquees were large groups of well-grown plants of *Carnation Uriah Pike*, exhibited by Mr. G. May, Upper Elmington, the tall spikes of which, crowned as they were with large flowers, looked particularly striking. A large and effective group of mixed plants was staged by Mr. H. B. May, Upper Elmington, the plants all being in healthy condition, and composed of *Coleus Decorator*, *Crotons Comtesse superba*, *Baron Frank Sellière*, *Nestor*, *Formosa*, and *Mayi*; *Coleus Crimson Gem*, and *C. Surprise*, together with *Pandanus Veitchi*, *G. oxiniæ* splendidly bloomed, and many other plants.

Messrs. Hugh Low & Co., Clapton, staged an effective group of plants, in which *Caladiums* predominated; amongst other varieties were *Charlemagne*, *Xeres*, *Queen of the Isles*, *John Peed*, and *Mrs. Laing*. It would be difficult to speak too highly of the above firm's magnificent collection of *Cannas*, which in form and flower were near perfection. Amongst many others were *Charles Moore*, *Charles Henderson*, *L. E. Bailey*, *Florence Vaughan*, and *Alphonse Bouvier*. In the same group were also included plants of the new perpetual flowering *Mignonette Bush Hill White*, together with *Ivy-leaved Pelargonium The Blush*. Large trusses of *Rhododendron* blooms were sent by Mr. Colmber, gardener to J. H. Johnson, Esq., M.P., Bignor Park, Pulborough. A large group of magnificent *Caladiums* was staged by Mr. W. Weston, comprising several fine varieties. Several diminutive *Orange* plants in flower, and bearing fruit were included in the exhibit.

Messrs. Sutton & Sons, Reading, staged a group of *Giant Mimulus*, plants of bedding *Begonias*, and a magnificent collection of *Calceolarias*, which for size of flowers and delicacy of colour it would be difficult to excel, whilst the general substance of the plants proved that their culture had been of the best. Amongst other varieties the bright yellow *Cloth of Gold* was particularly striking; it is an excellent kind and well worthy of cultivation. A collection of well grown *Palms* was also sent by the same firm, together with *Azalea mollis*; as also were hardy flowers, comprised of Sutton's *Giant Anemone*, Sutton's *Giant Ranunculus*, *Parrot Tulips*, *Narcissi*, double white *Jonquils*, and many others. *Gloxinias* were also well represented with well flowered plants of Sutton's *Prize*. A pleasing spectacle was formed by a huge clump of *Lily of the Valley* flowers—Sutton's *Giant*. Included in the collection were well flowered plants of *Saintpaulia ionantha*.

Mr. D. Campbell, The Priory, Rehampton, sent plants of *Clerodendron A Priori*, which appears to be very profuse in flowering. A pot of *Adiantum Karlakei* was exhibited by J. B. Karlake, Esq., Reading. Messrs. John Bolam, Alnwick, sent double *Polyanthus* flowers, and Mr. J. T. Robertson, Ramsgate, sent blooms of a seedling *Pelargonium*. Messrs. R. Wallace & Co., Colchester, staged a collection of *Irises* and *Camassia Cassicki*. Amongst the former were *Florentine*, *Princess of Wales*, *Germanica major*, and *Germanica violacea*. A large and varied display of hardy flowers came from Messrs. J. Cheal & Sons, Crawley, consisting of *Rhododendrons* in variety, *Syringa Charles X.*, *Doronicums*, and others. *Violas* were well represented with flowers of *Oriel*, *Lord Beaconsfield*, *Profusion*, *Duchess of Sutherland*, *Duchess of Fife*, *Countess of Hopetoun*, *Quaker*, *Royalty*, *Joy*, *Goldfinch*, and others.

Messrs. Wm. Paul & Son, Waltham Cross, sent fine trusses of *Lilac* flowers, amongst others being *Marie Lequay*, *Souvenir de Louis Spathe*, together with *Rhododendrons* and other hardy flowers. A fine display of hardy flowers came from Messrs. Geo. Jackman & Son, Woking, conspicuous in the collection being blooms of *Pæony Mountan*, *Phlox amœna*, *Pyrethrum Mont Blanc*, *Centaurea montana rosea*, *C. m. alba*, *C. m. rubra*, *Heuchera sanguinea*, together with flowers of *Cypripedium calceolus*, *Phlox canadensis* (fig. 80), and others, all of which were very fine.

A large and exceedingly varied group of Ferns was staged by Messrs. W. & J. Birkenhead, Manchester, all of which bore signs of being well grown. Very attractive in the collection were *Gleichenia rupestris*, *Davallia aculeata*, *Adiantum Waltoni*, *Davallia tenuifolia Veitchiana*, *D. fijiensis elegans*, *Adiantum speciosum*, *A. tinctorum*, *Osmunda cinnamomea*, and others. Mr. Perkins, gardener to the Hon. W. F. D. Smith, M.P., Henley-on-Thames, sent an excellent group of *Amaryllis* interspersed with *Palms* and *Dracænas*; the plants were well grown and diffuse in variety. Mr. Downes, gardener to J. T. Bennett-Poë, Esq., Holmewood, Cheshunt, staged an excellent group of splendidly flowered plants of *Streptosolon*, which were very effective. Mr. Downes also sent a number of plants of double *Polyanthus Cloth of Gold*.

An attractive collection of *Violas* was exhibited by Mr. Septimus Pye, Garsang, Lancashire, and included many charming varieties. Amongst those of late introduction were *Butterfly*, *Florizel*, *Border Witch*, *Dorothy Stokes*, *Annie Wood*, *Duchess*, *Cecilia*, *Robin*, and *Constance Smith*; and of the older kinds *Princess Beatrice*, *Queen of the May*, *Star*, *Purple Empress*, and several others were very conspicuous.

Messrs. B. S. Williams & Son, Holloway, staged a small but effective group of *Amaryllises*, containing many of the best varieties. The same firm also exhibited a charming floral display, which comprised bouquets, baskets of flowers and sprays, in the make-up of which many delicate *Orchids* and other flowers had been used to advantage. Mr. W. Joy, Hill Lane, Southampton, sent a number of plants of double tricolored *Pelargonium Ada Joy*. Several well-bloomed plants of *Spiræa Van Houttei confusa* came from the nurseries of Messrs. George Bunyard and Co., Maidstone.

Mr. Prewett, Hammersmith, exhibited rustic designs for table decoration which were exceedingly light and attractive. An effective floral arrangement was exhibited by Mr. L. A. Calcutt, Stoke Newington, in which elegance in display had evidently been the object in view, and in this respect left little to be desired. Messrs. Phelps & Co., Cardiff, staged magnificent shower bouquets, in which Roses, Odontoglossums, and *Pancreatiums* were predominant.

The floral designs of Mr. J. R. Chard, Stoke Newington, were in every respect worthy of merit, the flowers and colours being pleasingly discriminated. Messrs. Perkins & Sons, Coventry, staged shower bouquets, sprays, and floral designs such as might have been expected from this well-known firm. They were all beautiful, but one representing a harp and another an anchor, were worthy of an especial word of praise. From the Horticultural College, Swanley, came tastefully made bouquets and small but effective table decoration. Mrs. Hodgkins, Didsbury, Manchester, exhibited an attractive display of botanical anatomy in which the tissues of many skeletonised leaves were shown in perfection.

Noticable in one of the beds in the lawn were a number of admirably furnished specimens of the Umbrella Pine of Japan, *Sciadopitys verticillata*. They had been planted a day or two previously by Messrs. Veitch & Sons from their Coombe Road nursery. It is rare to find this distinct Conifer in such deep green colour. They were grown with *Rhododendrons* in soil which contains naturally a good deal of peat or vegetable matter. This, then, is what the Umbrella Pine needs to make it flourish. The specimens alluded to had no protection whatever during the arctic frost of February, and they sustained not the slightest injury.

CERTIFICATES AND AWARDS OF MERIT.

Begonia White Camellia (T. S. Ware).—This is an admirably named double variety (award of merit).

Begonia Lady Annesley (F. Sander & Co.).—This is a silvery-leaved form, with dark veins and a dark green blotch at the base (award of merit).

Begonia Rex Sander's Masterpiece (F. Sander & Co.).—The leaves of this *Begonia* are somewhat small in size and of a dull crimson shade, with dark green blotches at the edges (award of merit).

Begonia Samuel Pope (T. S. Ware).—This is a charming *Begonia* with cream coloured blooms, each petal being edged with rose (award of merit).

Caladium Rose Laing (J. Peed & Sons).—This is a large-leaved variety of greenish-white colour with rose marking towards the centre (award of merit).

Caladium Henry Irving (J. Veitch & Sons).—This is a dwarf-growing variety with medium-sized leaves. The centre colour is silvery grey with broad bright green edge and rose veins (award of merit).

Caladium Lord Derby (J. Veitch & Sons).—The leaves of this *Caladium* are of rosy red shade with broad green veins and edges (award of merit).

Cattleya Mendeli dellensis (H. Ballantine).—The sepals and petals of this handsome form are delicate rose pink in colour, while the beautiful lip is deep purplish rose with a yellow throat, in which are crimson veins (first-class certificate).

Cattleya Lawrenceana atro-rubens (Jules Hye).—The petals of this *Cattleya* are rich deep rose, the sepals being much paler in colour. The lip is very beautiful in form, and of a deep velvety crimson purple shade (award of merit).

Cattleya Mossiæ Prince of Wales (F. Sander & Co.).—The sepals and petals of this *Mossiæ* are of good substance, and deep rose colour. The lip is deep rosy purple with a paler edge and white mottling. The lip is yellow and crimson (award of merit).

Cattleya Mossiæ Lady Wigan (Sir F. Wigan).—This is a very distinct variety, with almost pure white petals and sepals. The lip is white mottled and flushed pink, with yellow blotches in the throat (award of merit).

Cattleya Mendeli grandis (Hugh Low & Co.).—The broad petals of this flower are very faint blush in shade, the narrow sepals being of a somewhat deeper hue. The lip is fine with a rosy purple central blotch, and white margins with a yellow throat (award of merit).

Clematis Duchess of York (G. Jackman & Son).—The tubular flowers of this variety are of fine shape and delicate pink colour (award of merit).

Cypripedium Stonei platytanum (W. H. White).—This superb variety is a great improvement on the type. The dorsal sepal is white with purplish black lines. The petals are dull yellowish white, heavily blotched very deep purple towards the tips. The lip is of peculiar form and rosy colour (first-class certificate).

Dracæna Godseffiana (F. Sander & Co.).—This is apparently a variety of the old *D. surculosa*, and has bright green leaves with white spots (first-class certificate).

Gloxinia Prince of Wales (H. Cannell & Sons).—The handsomely formed flowers of this *Gloxinia* are velvety crimson in colour (award of merit).

Incarvillea Delavayi (W. Bain).—This is a Chinese plant of recent introduction, having beautiful rose-coloured flowers very much resembling a *Gloxinia* in shape. It is an herbaceous perennial, and said to be perfectly hardy in our gardens, and if such proves to be the case will certainly become popular. *I. Delavayi* is depicted in the woodcut, fig 75 (first-class certificate).

Lælia purpurata Bella (W. L. Lewis & Co.).—This is a grand purpurata with white sepa's, petals, and lip, the latter towards the throat

having crimson purple blotches, with veins of the same shade (award of merit).

Masdevallia Shuttryana.—This is a hybrid of dwarf habit with reddish salmon flowers, having yellow tails. The bloom is of a medium size (award of merit.)

Masdevallia Harryana miniata (W. H. White).—This is a very rich bright scarlet form of the type, with perfectly formed flowers (award of merit.)

Miltonia Bleuiana virginalis (Jules Hye).—This is chastely beautiful, with pure white sepals, petals, and lip. The base of the petals has a charming flush of rose (first-class certificate).

Odontoglossum Fescatorei La Perfection (Ch. Vuylststeke).—The flowers of this variety are of almost perfect shape. The ground colour is white, slightly flushed rose, and with deep rosy purple spots (award of merit).

Pæony Lord Iveagh (Kelway & Son).—This is of the tree section, and has superb flowers of a rich rosy red colour (award of merit).

Pelargonium Duchess of York (J. Prewett).—This, a very brightly coloured tricolor *Pelargonium* of dwarf habit (award of merit).

Phyllocactus Excellent (J. Veitch & Sons).—This is a very beautiful variety with orange scarlet flowers. The margins of the petals are crimson (award of merit).

Sibthorpia europæa aurea variegata (J. Backhouse & Sons).—This is a charming yellowish green form of the type (award of merit).

FRUIT AND VEGETABLES.

Some difficulty was experienced in giving anything like a systematic report in this section, inasmuch as the collections were not separately arranged. Some exhibits consisted of vegetables alone, some of fruit and vegetables, and in others plants and flowers were also included.

Prominent in this department was a remarkable contribution of produce from Messrs. Sutton & Sons, Reading—remarkable in extent, variety, excellence, and, it may be added, novelty. It is not too much to say that a similar display has never been seen at any show in any country. For instance, a row of Peas, and a splendid row too, in full bearing, is quite an innovation at a "flower" show in May, while Runner Beans 6 to 8 feet high is a fresh start in the art of exhibiting. The Beans, it may be said, were Sutton's Tender and True, four plants grown in 12-inch pots, each plant with its stake, and bearing splendid pods from base to summit, like fine examples of Canadian Wonder. These pillars of Beans were both useful and ornamental, and arrested much attention.

The "row of Peas" first mentioned was formed by a number of plants grown in large pots and then placed side by side. They were bearing a very full crop of fine pods to a height of 3 feet of Sutton's A1, and were timed to the day. A dwarf Pea, Sutton's Favourite, 18 inches high, was bearing prodigiously, the plants moreover being as green and healthy as if growing naturally in the open ground. Still a dwarf Pea, about the height of American Wonder, but with pods thrice the size, was equally well represented, as, too, were the taller varieties, Sutton's Empress of India and May Queen. These were not confined to one or two pots of each variety, but were in sufficient number to form rows. All were admired, but perhaps the Sturdy Dwarf with its large pods was the favourite with the public, and it has, no doubt, a good future before it.

Then we pass to the Tomatoes, of which it is impossible to speak in too high terms of approval. The several varieties were admirably grown in pots, the heavy crops of fruit being ripe or ripening. The long racemes of Sutton's Dessert, with its Plum-like red fruits, and Golden Nugget, with fruits of similar size, the racemes trained upright to a central stake, were in their way unique; but all the same the effect was artificial, and it would perhaps have been well to have shown some of the plants in their natural character.

Among other varieties plants of Sutton's Abundance had clusters of large fruits within 3 inches of the pots, and to a height of a little more than 2 feet. Maincrop plants were a little taller, and fruits perhaps a trifle larger. The tallest plants were of a new variety, Princess of Wales, magnificently grown, bearing large clusters of handsome scarlet fruits from within 6 inches of the pot to a height of 4 feet or more. Still there were more. Sutton's Tender and True, a dwarf crimson variety, bearing prodigiously; Sunbeam, with golden egg-shaped fruits of great beauty, and Sutton's Best of All, perhaps the gem of the collection, the plants 2 feet high, and fruits large, smooth, symmetrical and attractive, some of them almost or quite touching the soil. We have said enough to justify our remarks as to the character of this imposing exhibit without dwelling on the grand display of *Calceolarias*, *Begonias*, *Gloxinias*, and other flowers, by which the vegetable crops were flanked.

The next objects which we came near, or rather stood under, were umbrella-trained Cucumber plants, grown by Mr. H. W. Ward, of Longford Castle—variety Carter's Earliest of All, apparently of the Cardiff Castle type, bearing abundantly well-shaped fruits of the first table quality. The Cucumber pots were "plunged" in a groundwork of Carter's Harbinger Lettuce—a curled-leaved, light green, tender-looking variety, suggesting a touch of Endive in its composition. Cos Lettuces and very fine Radishes in several varieties were included in the group, of which, however, Mr. Ward's "tree" Cucumbers were the prominent feature. They were well grown, and must have been skilfully packed to arrive in such fresh condition.

Mr. W. J. Empson, gardener to Mrs. Wingfield, Amptill, arranged an extensive and excellent assortment of vegetables, including Carter's Model Broccoli, very fine; large Leeks, as well as superior Potatoes, also Tomatoes, Carrots, Beans, Asparagus, and almost everything in

season, brightened with a few Apples and good dishes of Strawberries. Mr. J. C. Waite, Glenhurst, Esher, exhibited large bunches of very fine Asparagus, also first-class fruits of Carter's Model Cucumber. Mr. R. J. Steel, Brentford, staged a fine collection of salads, also superior Carrots, which some gardeners concluded had been "grown in France."

Mr. G. Wythes staged what may be called a choice assortment of vegetables appropriate for a nobleman's table, all kinds in season being included, not large but of choice quality. Mr. Wythes also had a stand of excellent fruit, including Grapes, Melons, Peaches, Nectarines, Figs, and Strawberries, all of the best dessert quality.

Mr. George Bunyard, Maidstone, arranged a wonderfully fine and well-kept collection of sixty-five varieties of Apples. A few of the finest were King of Tomkins County, Sturmer Pippin, La Pontoise, Striped Beefing, Annie Elizabeth, High Canons, and Newton Wonder.

Mr. J. Friend, The Gardens, Rook's Nest, Godstone, staged excellent bunches of Foster's Seedling Grapes, considering the earliness of the season; also very good Black Hamburgs. Mr. G. Featherly, The Vineries, Gillingham, Kent, had a splendid market basket of Black Hamburg Grapes, fine Cucumbers, excellent Kidney Beans, and good Peaches. Mr. Osman, gardener to W. J. Brown, Esq., Ottershaw Park, exhibited capital examples of Black Hamburg Grapes; good bunches of this variety, as well as of Foster's Seedling, coming from Thomas Statter, Esq., Stand Hall, Manchester. Also excellent Grapes, Melons, and Figs were exhibited by Mr. Messenger, gardener to C. H. Berners, Esq., Woolverstone Park, Ipswich.

Last, but certainly not the least worthy of notice, was a number of Nectarine trees in pots laden with brightly coloured fruits from Messrs. T. Rivers & Son, Sawbridgeworth. Though these trees were arranged in the chief Orchid tent, with a magnificent bank of Orchids in front of them, and flanked on each side by specimen Roses and Caladiums, the trees lost nothing by the contrast; they really made a pleasing break or change to the rich masses of floral beauty. They consisted of two varieties of Nectarines only—namely, the valuable Early Rivers, and another Sawbridgeworth seedling of the same bright colour. This is appropriately named Cardinal. The fruits are not so large as Early Rivers, but they ripen nine or ten days sooner, and this is something when they realise 36s. a dozen, and 2½ dozen are borne on one bush tree. However, trees of Cardinal are not likely to be put in commerce, as the variety is only of value for early forcing, and then needs special care, whereas Early Rivers grows as freely as Lord Napier, and produces larger and brighter fruits, rendering it the first and best early Nectarine for general cultivation. There was nothing more meritorious in the show than this fine group of trees, studded with rich red fruits.

LIST OF AWARDS.

Gold Medal.—T. Rivers & Son, Sawbridgeworth, for Nectarines in pots.

Silver Cups.—J. Veitch & Sons, King's Road, Chelsea, for Streptocarpus and other plants; Sander & Co., St. Albans, for Orchids and new plants; Baron Schröder, The Dell, Egham, for Orchids; Sir Trevor Lawrence, Burford Lodge, Dorking, for Orchids; Paul & Son, Cheshunt, for pot Roses, Cannas, and others; C. Turner, Royal Nurseries, Slough, for Roses, Pelargoniums, and Azaleas; Sir Frederick Wigan, Clare Lawn, East Sheen, for Orchids; Sutton & Sons, Reading, for Gloxinias, Begonias, Lilies, Tomatoes, and Cucumbers; J. Backhouse & Son, York, for Filmy Ferns, Alpine, and herbaceous plants; Richard Smith and Co., Worcester, for specimen Clematises; Wm. Iceton, Roehampton, S.W., for Palms and Caladiums; Wills & Segar, Onslow Crescent, South Kensington, for decorative Palms; G. Bunyard & Co., Maidstone, for Apples; Pantia Ralli, Esq., Ashted Park, Epsom, for Caladiums; J. James & Son, Farnham Royal, for Calceolarias; H. Low & Co., Clapton, for Orchids, stove and greenhouse plants; and Perkins and Sons, Coventry, for floral designs.

Silver-gilt Flora Medals.—W. Balchin & Sons, Hassocks Nurseries, for Leschenaultias; P. Barr & Son, Covent Garden, for cut flowers; J. T. Bennett-Poë, Esq., Cheshunt, for Streptosolen Jamesoni; W. & J. Birkenhead, Sale, Manchester, for Ferns; H. Cannell & Sons, Swanley, for Begonias and Gloxinias; J. Carter & Co., High Holborn, for cut flowers; Charlesworth & Co., Heaton, Bradford, for Orchids; James Cypher, Cheltenham, for Orchids; J. Gurney Fowler, Esq., S. Woodford, for Orchids; W. Fromow & Sons, Chiswick, for Japanese Maples; Geo. Jackman & Son, Woking, for pot Roses; J. Kelway & Son, Langport, Somerset, for hardy flowers; W. L. Lewis & Co., Southgate, N., for Orchids; W. Paul & Son, Waltham Cross, for Roses; J. Peed & Sons, Norwood Road, for Caladiums; Leopold de Rothschild, Esq., Leighton Buzzard, for Carnations; T. S. Ware, Tottenham, for Begonias and cut flowers; B. S. Williams & Son, Upper Holloway, for Orchids; and John Waterer & Son, for Acers and Rhododendrons.

Silver-gilt Knightian Medals.—Welbore S. Ellis, Esq., Hazelbourne, Dorking, for Orchids; Earl Percy, Syon House, Brentford, for fruits and vegetables; and Mrs. Wingfield, Amptill, for vegetables.

Silver-gilt Banksian Medal.—C. H. Berners, Woolverstone Park, Ipswich, for black Grapes.

Silver Flora Medals.—L. H. Calcutt, Stoke Newington, for table decorations; Chard & Co., for cut flowers; Malcolm S. Cooke, Kings-on Hill, for Orchids; W. Cutbush & Son, Highgate, for Azaleas and cut flowers; Dobbie & Co., Rothesay, for Violas; H. J. Jones, Lewisham, for Pelargoniums; B. Ladhams, Shirley, for cut flowers; H. B. May, Upper Edmonton, for Ferns; G. Mount, Canterbury, for cut Roses; Sir J. W. Pease, Bart., M.P., Guisborough, for fruits; Earl Percy, Syon House, Brentford, for Orchids; W. Rumsey, Waltham Cross, for pot Roses; and the Hon. W. F. D. Smith, M.P., Henley-on-Thames, for Hippeastrums.

Silver Knightian Medals.—I. J. Baker for Grapes; and Earl of Radnor, Salisbury, for Cucumbers.

Silver Banksian Medals.—John R. Box, Croydon, for cut flowers; J. Cheal & Sons, Crawley, for cut flowers; Horticultural College, Swanley, for table decorations; M. Prichard, Christchurch, for cut flowers; Phelps & Co., Queen Street, Cardiff, for bridal bouquets; S. Pye, Garstang, for Pansies and Violas; and Wallace & Co., Colchester, for hardy flowers.

We were very glad indeed to see the show such a success, and also to learn at the time of going to press that the attendance far exceeded that of previous years. The secretaries and managers of the show are deserving of hearty commendation for the excellent manner in which they performed their duties.

ROYAL NATIONAL TULIP SOCIETY.

THE exhibition (at the Temple) as a whole was far in advance of last year's show, though the season has been by no means so propitious. The feathered flowers were of very high excellence, whilst the flamed varieties were but moderately good—another illustration of an apt



FIG. 75.—INCARVILLEA DELAVAYI.

saying of old growers, "We shall have some good 'feathers' after this hard frost." Universe, a seedling of Dymock's, was beautifully feathered in Mr. C. W. Needham's pan of six, and was awarded a certificate as premier feathered flower.

An unknown feathered byblømen, like Mrs. Cooper, in the third pan of twelve of Mr. Needham's was very meritorious. Heroine, an old Dutch sort, was exhibited by Mr. Haynes in his stand of six. General Grant, as shown by Mr. Bentley, was a very fine bizarre—gold cup with a dark red feather, well perilled.

Sir Joseph Paxton, an almost perfectly flamed bizarre, shown by Mr. Haynes of Warwick in Class 4, was awarded the certificate as premier flamed flower. Dr. Hutcheon, a very telling, well-marked bloom, was seen in the Rev. F. D. Horner's stand in Class 4. The breeders were rather small, but of good quality. The seedlings of the Rev. F. D. Horner were excellent, and very striking in their richness and purity. Fairy, a byblømen, and Rosy Morn, a fine dark rose breeder, were quite attractive.

Class 1, twelve dissimilar rectified Tulips.—First prize, silver-gilt medal, Mr. J. W. Bentley, Stakehill House, Castleton, Manchester, byblømens, flamed, Chancellor, very good, and Talisman; feathered, Friar Tuck and Elizabeth Pegg; bizarres, flamed. Dr. Hutcheon, fine, and Hepworth's Seedling; feathered, General Grant and Masterpiece; roses, flamed, Mabel and Rose Celestial; feathered, Julia Farnese, quite pure, and Comte de Vergennes. Second prize, silver medal, Mr. T. Haynes, Warwick, roses, flamed, Mabel and Aglaia; feathered, Rose Hill and Heroine; byblømens, flamed, Amazon and Alice Maud; feathered, Adonis and Mrs. Pickerill; bizarres, flamed, Sir Joseph Paxton and

Ajax; feathered, Masterpiece and Sir J. Paxton. Third prize, Mr. C. W. Needham, Royley Royton, near Manchester, roses, flamed, Aglaia and Lady C. Gordon; feathered, Hilda and Modesty; bybloemens, flamed, Carbuncle and Friar Tuck; feathered, Trip to Stockport and a seedling; bizarres, flamed, Masterpiece and Wm. Wilson; feathered, Masterpiece and Luke Ashmole.

Class 2, six dissimilar rectified Tulips.—First prize, silver medal, Mr. C. W. Needham, Royley, Royton, Manchester, with bizarres, flamed, Sir Joseph Paxton; feathered, Luke Ashmole; bybloemen, Universe feathered and Universe flamed; roses, Lady Catherine Gordon flamed, Annie M'Gregor feathered. Second prize, Mr. T. Haynes.—Flamed bybloemen, Adonis; rose, Heroine; bizarre, Sir J. Paxton. Feathered, Bessie, Mabel, and Sir J. Paxton. Third prize, Mr. J. W. Bentley.—Feathered bybloemen, Beauty of Litchurch; rose, Annie M'Gregor; bizarre, Masterpiece. Flamed, Charlemagne, Aglaia, and Masterpiece. Fourth prize, Mr. G. Edom, Horeham Road, Sussex, with Dr. Hardy, flamed, Sir J. Paxton, feathered, bizarres; Universe, feathered, and Bessie, flamed, bybloemens; Aglaia, both a feathered and a flamed rose.

Class 3, three feathered Tulips.—First prize, Mr. J. W. Bentley. A fine exhibit, comprising Coningsby Castle, General Grant, and Comte de Vergennes. Second prize, Mr. T. Haynes, Sir J. Paxton, Mabel, and Adonis. Third, Mr. C. W. Needham, Modesty, Ashmole, Bessie. Fourth, Mr. G. Edom.

Class 4, three flamed Tulips.—First prize, Mr. T. Haynes, with a grand pan consisting of Universe, Sir J. Paxton, and Mabel. Second prize, the Rev. F. D. Horner, M.A., Lowfields, Burton-in-Lonsdale, with three excellent blooms of Dr. Hutcheon, Hepworth's Seedling, and Mabel. Third prize, Mr. T. W. Bentley, Mabel, Bessie, Duke of Devonshire. Fourth, Mr. C. W. Needham, Dr. Hardy, Bessie, and Nanny Gibson. Fifth, Mr. G. Edom, with Sir Joseph Paxton, Aglaia, and an unknown bybloemen.

Class 5, six dissimilar Tulips.—First prize, silver medal, the Rev. F. D. Horner, Lowfields, Burton-in-Lonsdale, with Fairy and Desdemona, bybloemens; Mrs. Barlow and Rosy Morn, roses; Dragonfly and Storer's 3A, bizarres. Second prize, Mr. T. W. Bentley, Sir Joseph Paxton and Goldfinder, bizarres; Elizabeth Pegg and Glory of Stakehill, bybloemens; Mabel and Hepworth's Seedling, roses. Third, Mr. C. W. Needham, Sir Joseph Paxton, and Goldfinder; Glory of Stakehill and Elizabeth Pegg; Madame St. Arnaud and Lloyd's Seedling. Fourth, Mr. T. Haynes, Rose Hill and Mabel; Doctor Hardy and Sir Joseph Paxton; Beauty of Litchurch and Talisman.

In Class 6 there was a very close competition for the Samuel Barlow Memorial prize, for one feathered and one flamed Tulip of any class. First prize, Mr. C. W. Needham, with Elizabeth Pegg, feathered; and Sir Joseph Paxton, flamed. Second prize, the Rev. F. D. Horner, with a seedling bybloemen, feathered; and Mabel. Mr. T. Haynes was quite a close competitor with Masterpiece, feathered; and Sir Joseph Paxton.

In the competition for groups of amateur English Tulips, J. T. Bennett-Poë, Esq., Holmewood, Cheshunt, was awarded the first prize silver medal for his collection of well-grown blooms, in which were fine specimens of Sir Joseph Paxton, Sulphur, Mabel, and Annie MacGregor. A few more breeders would have brightened the exhibit. Second prize, Mr. J. W. Bentley. Third prize, Mr. G. Edom. The group exhibited by Mr. C. W. Needham being next in order of merit. The afternoon of Tuesday being rather dark, the blooms were hardly seen to the best advantage, some of them closing as the afternoon waned.—C. W. N.



WEATHER IN LONDON.—During the past week the weather in the metropolis has been very cold, the winds being particularly harsh and unfavourable to vegetation. A few drops of rain have fallen at intervals, while equally rare glimpses have been caught of the sun. It is hoped that a change will soon be experienced. Yesterday (Wednesday) was bright, though a little milder.

— WEATHER IN THE NORTH.—The weather towards the close of last week was cold and ungenial, and snow fell in both the north and the south of the country. Sunday was also cold, and the hills to the north were slightly whitened on Monday morning. With the advance of the day on Monday there was a return of milder weather.—B. D., *S. Perthshire*.

— GARDENING APPOINTMENT.—Mr. Wm. M. Moir, gardener to the Rev. Dr. McLeod (Chaplain to Her Majesty) at Glenfeulan, Dumbartonshire, and formerly at Rosshall, Paisley, has been appointed head gardener to J. D. Fletcher, Esq., Rosehaugh, Ross-shire.

— VIOLA CONFERENCE AT BIRMINGHAM.—The second annual Conference of growers and others interested in Violas will be held on the first day (29th inst.) of the Pansy and Viola show in the Edgbaston Botanical Gardens at four o'clock in the afternoon. Mr. William Cuthbertson will be Chairman, and the following papers will be contributed:—Professor Hillhouse, "The Genus Viola;" Mr. Richard Dean, "Older Varieties of Violas;" Mr. J. D. Stuart, "Viola Sports;" Mr. E. Burrell, "Violas That Do Well in Surrey;" Dr. Stuart, "Newer Varieties of the Violetta type;" Mr. A. J. Rowberry, "The Winter Treatment of Violas."

— COLCHESTER ROSE AND HORTICULTURAL SOCIETY.—The summer exhibition of this Society is announced to be held in the grounds of East Hill House, Colchester, on Thursday, June 20th, when excellent prizes will be adjudged for Roses, general plants and flowers, vegetables and fruit. The show will be divided into sections to meet the positions of all growers, and should prove a great success. The Chrysanthemum Show is fixed for Thursday, November 7th. Full particulars, with schedules, may be had from the Hon. Sec., Mr. O. G. Orpen, West Bergholt, Colchester, and Mr. P. R. Green, Colchester.

— SHIRLEY GARDENERS' AND AMATEURS' IMPROVEMENT ASSOCIATION.—A meeting was held on the 20th inst. at the Parish Room, Shirley, Southampton, when the President (Mr. W. F. G. Spranger) presided over a good attendance of the members. Mr. Jesse Jones, The Gardens, Terrace House, Polygon, Southampton, read a paper on the "Cultivation of the Melon." The increased fruitfulness of plants raised from seed two or more years old, compared with plants from quite new seed, was advanced; but no definite conclusion on the point appeared to be arrived at. A vote of thanks was accorded to Mr. Jones for his interesting and instructive paper.

— PEARSON'S "VINE CULTURE."—This little shilling work on the Vine maintains its popularity, as is evident by the issue of a sixth edition, published by Messrs. Forman & Sons, Nottingham. Written by one of the soundest of horticulturists in his generation, the late Mr. J. R. Pearson, and revised and edited by his son, Mr. C. E. Pearson, this handy little book may be regarded as a safe and sound guide for those busy people who want the greatest amount of information in the least space and at the smallest cost. It is a *multum in parvo* on the cultivation of the Vine, and the prevention or destruction of its enemies. It would be no great task to get the matter "off by heart," and those who should do this will have knowledge worth many shillings, and it may be pounds, stored in their minds.

— FLORAL DECORATIONS AT WARWICK CASTLE.—These were carried out on an extensive and elaborate scale during the recent visit of the Prince of Wales to the castle of the once king maker. Hundreds of splendid Maréchal Niel and Catherine Mermet Roses were employed, as well as large quantities of Lily of the Valley and Malmaison Carnations. Perhaps the chief feature of the floral arrangement was a large group of choice Orchids displayed with great taste, and intermingled with *Asparagus plumosus* in the fine drawing-room. On every hand Mignonette and Lily of the Valley filled the atmosphere with perfume. In the grand old hall, for which the castle is famed, stately Palms spread their arching fronds high above banks of vivid scarlet, the whole arrangement producing an effect not easily forgotten, and must have entailed an immense amount of work on the part of Mr. H. Dunkin, Lord Warwick's head gardener, and his assistants.—G. H. S., *Warwick*.

— GARDEN TULIPS.—The note on "Gardeners' Tulips" (page 422), by Mr. Brotherston, is opportune, and leads me to make a note about what I term garden Tulips. I allude to those that are grown solely in gardens, and which I call old fashioned Tulips, as being distinct from any of those cultivated in pots. In this neighbourhood much attention is paid to these Tulips by the cottagers, and hardly a garden can be seen that does not contain a good number. It is surprising what a range of colouring is to be found, from pure white to the darkest of red, embracing all conceivable shades of yellow, pink, and carmine. No one ever dreams of disturbing the bulbs with the idea of improving them in any way. From the success attained hereabouts it is a plain proof that annual replanting of the bulbs is not at all necessary. In what we call the wild part of our garden there are a goodly number of both double and single Tulips of this section growing in the grass. To my knowledge they have not been disturbed for sixteen years, and they flower annually in profusion. The sweet-scented Florentine Tulip (*syvestris*) is a great favourite. The bright yellow flowers are tinted with green on the outside, and last in freshness a long time.—E. M.

— A "PAT" DESCRIPTION OF THIRSTY IRELAND.—Parched with the drought. Last rain we had was a hailstorm on May Day.—PAT.

— BANDS IN THE LONDON PARKS.—A pamphlet recently issued by the Parks Sub-Department of the London County Council informs us that bands will play in various parks and recreation grounds on each day of the week from May 16th to September 8th, and that in eleven open spaces bands will perform on Sundays, commencing May 19th and ending September 8th.

— STAPHYLEA COLCHICA.—Though this pretty flower is extensively used for forcing it is not seen blooming in the open air in gardens so often as might be expected, and those who grow it under these conditions will testify to its usefulness. It is one of the most pleasing of all flowering shrubs, and having passed safely through the ordeal of the severe winter, may be seen in some gardens blooming profusely, its sweet-scented, creamy-white flowers being very conspicuous. It grows and blooms in almost any position with little attention, which fact alone is sufficient to recommend it.—H.

— MAKING PARIS GREEN MORE EFFECTIVE.—Paris green is soluble in ammonia and carbonate of ammonia, but experience teaches that whenever arsenic in solution is applied to foliage it injures the leaves; otherwise compounds of arsenic with potash, soda, and ammonia, might be used instead of Paris green. The fact that Paris green yields its arsenic slowly is protection against the destructive action of the arsenious acid. It is not unlikely that if some gum-like material were added to the Paris green mixture, to fasten it to the foliage, failures from its use might be prevented. It might be worth while to try adding a small amount of dextrine (British gum) for holding the green to the foliage.—C. A. GOESSMANN (in the "American Agriculturist.")

— RAINFALL IN PALESTINE.—From a paper on "Early Agriculture in Palestine," by Dr. H. Vogelstein, we learn the interesting fact that in the first two centuries of the Christian era, rainfall was measured by means of a receptacle. The Jewish "Mishnah" refers to two seasons, one wet and the other dry. In normal years the early rain fell soon after the autumnal equinox, and its importance to agriculture is frequently referred to in that document. The amount which fell at this season was about 21 inches, which agrees fairly well with the present measurements at Jerusalem, but the total annual fall is not stated by Dr. Vogelstein. Further particulars of this interesting communication will be found in the "Meteorologische Zeitschrift" for April.—("Nature.")

— A BIG ROSE.—The specimen of Lamarque Rose in one of the Californian cities is sufficient to make cultivators of Tea Roses in this country somewhat envious. The Rose was planted in the autumn of 1876, and has grown vigorously from the first, and during the past fifteen years has borne enormous numbers of flowers. At the present time the stem immediately above the surface of the ground has a circumference of 2 feet 9 inches, and the two branches that spring from the main stem are each 2 feet in circumference. The growth has been trained over a large arbour, and this is annually pruned somewhat severely, a wagonload of wood being, it is stated, cut away last autumn. A contemporary has been informed that the blooms have been counted for several years, and the average in the five seasons previous to this has been upwards of 14,000. This year the number produced in March and April was 21,640.

— FLORAL DECORATIONS IN JAPAN.—The perambulating florist, says an American journal, offers quite a contrast to our ideas, with his flowering branches standing in bamboo jars. The Japanese are great flower lovers, and the flower vendor is a familiar sight in the streets of their cities. They are very fond of flowering shrubs, cut sprays being much used in decoration. But their ideas of floral arrangement are very different from ours, and our choicest decorations would be coarse and inartistic in their eyes. All their floral arrangements have an underlying symbolism which we find difficulty in comprehending, though we can recognise the main principle—that of fidelity to Nature. A single branch of Cherry blossoms, standing in a bamboo flower holder, will be the result of as much thought as we give to an elaborate arrangement, and a mixture of incongruous bloom is never seen, being absolutely repugnant to them. The idea that a single Rose, thoughtfully placed so that stem and foliage as well as bloom show to advantage, is sufficient decoration for a table, an opinion offered recently by a lady of much taste, is certainly a move toward the Japanese ideal.

— WAKEFIELD PAXTON SOCIETY.—At a recent meeting of this Society Lieutenant Goodyear presided, and Mr. B. Whiteley was in the vice chair. Mr. J. Burton gave a most interesting lecture on the formation of the world. He illustrated his eloquent address, which was delivered extempore, by a coloured diagram showing the crust of the earth. Mr. Burton's lecture, which was of a scientific character, was most attentively listened to, much applauded, and provoked an interesting discussion.

— FRUIT IMPORTS IN GERMANY.—At a meeting of the Central Agricultural Bureau of South Australia it was reported that while it had been thought that Germany exported a large amount of fresh fruit, it had been found from an official paper of recent date that from 1884 to 1893, while they only exported 215,521 tons of fresh fruit, they imported 376,076 tons. The imports each were half a million sterling in excess of the exports. It was thought from these facts that a market for South Australian fruit might be secured in Germany.

— THE HARDINESS OF SCARLET RUNNER SEEDS.—Mr. Helmsley in his interesting paper on the "Vitality of Seeds," states (page 437) that "The Scarlet Runner Bean loses its germinative powers on exposure to slight frost." Some years ago, as not infrequently happens in gardens, a number of pods of Scarlet Runner Beans ripened in the plants. After these were dead the sticks to which they adhered were drawn and stacked for the winter, but through pressure of work the dead twiners were not removed at the time. They were, in fact, not removed until the spring, and the dried pods and beans were exposed to a month of severe frost, the thermometer on several consecutive nights registering only a few degrees above zero. After this ordeal, and the beans appearing sound, some of them were tested in the practical manner of sowing an extra row by the side of the usual number from purchased seed. It was not expected there would be many, if any, plants, but to the surprise of all concerned, every bean, which must have been frozen, germinated, and the plants grew as well and the row was as productive as any in the garden. The beans were taken from the pods on the ground and placed in the drill by the hand that writes these lines, and the facts are exactly as stated. Has Mr. Helmsley proved his allegation or relied on books for his information?—A GARDENER.

— ROYAL METEOROLOGICAL SOCIETY.—The monthly meeting of this Society was held on Wednesday evening, the 15th inst., at the Surveyors' Institution, Westminster, Mr. R. Inwards, F.R.A.S., President, in the chair. Mr. G. J. Symons, F.R.S., and Mr. G. Chatterton, M.Inst.C.E., read a paper on "The November Floods of 1894 in the Thames Valley," which they had prepared at the request of the Council of the Royal Meteorological Society. This consisted of a systematic description of the causes which led to the great floods of November last, and analysis of the records obtained from the Thames Conservancy Board, from the engineers of several of the towns along the river, and also from rainfall observers throughout the Thames watershed. The information was given chiefly in the form of tables, one of the first being a chronological history of floods in the Thames Valley from the earliest records down to the present time. This was followed by a short description of the damage wrought in November, 1894, which was illustrated by a number of interesting lantern slides. Details were then given of the levels reached at various places in all the principal floods from 1750 to the present time. The authors exhibited a map showing the relative elevation of all the parts of the Thames Basin, and then gave details of the rainfall for each day from Oct. 23rd to Nov. 18th, 1894. The results obtained by the Thames Conservancy Board showing the flood levels at each lock were exhibited on a longitudinal section from Lechlade to Teddington, and the hydraulic inclinations from lock to lock were shown in a tabular form. The volume of flood water, as gauged by the Thames Conservancy at Teddington, rose rapidly from 4,000,000,000 gallons per diem on November 12th, to 10,250,000,000 gallons on the 16th, 12,800,000,000 gallons on the 17th, and to over 20,000,000,000 gallons on the 18th, when the discharge reached its maximum. The last-named discharge is equivalent to 0.37 inch over the whole watershed of the Thames above Teddington Lock. Mr. F. J. Brodie also read a short paper "On the Barometrical Changes Preceding and Accompanying the Heavy Rainfall of November, 1894," from which it appeared that the latter half of October was characterised by unusually bad weather, especially in the more western and southern parts of the British Isles. The torrential rains of November 11th to 14th, which actually caused the floods, were due to two secondary depressions which developed a certain amount of intensity as they passed over the southern part of England.



CATTLEYA MENDELI PRINCESS OF WALES.

AMONGST the charming Orchids staged at the Drill Hall on the 14th inst. none attracted more attention than *Cattleya Mendeli* Princess of Wales (fig. 77) exhibited by Mr. De Barri Crawshay, Rosefield, Sevenoaks. The flower was exceedingly handsome, with broad, rosy, white petals, and narrow sepals of the same colour. The lip was heavily fimbriated, and of magnificent form. The outer portion was intensely rich purplish maroon, the throat being clear yellow veined with crimson. The Orchid Committee accorded an award of merit to this variety.



FIG. 76.—CYPRIPEDIUM CHAMBERLAINIANUM.

ORCHIDS AT CHELSEA.

THE annual exhibition of Orchids, which has been such a feature of Mr. W. Bull's establishment for so many years, is now on view. This season is no exception to the rule of high quality that has become so general here, and in a future issue we shall give a more lengthened notice. In the meantime visitors to London are recommended to make a journey to Chelsea, as we are confident they will be well repaid for the time and trouble.

THE DELL.

WHEN one thinks of Orchids, and especially *Odontoglossums*, one's mind instinctively becomes occupied with the name of Baron Schröder, than whom no amateur has a better or more complete selection. In its formation money has been brought to bear, as also has knowledge, which is of equal importance, for without money will most likely be absolutely thrown away in buying Orchids, and this with very little trouble. These two requisites have been and are still being found by the Baron and his efficient gardener Mr. H. Ballantine.

It is no superficial interest that the owner takes in this superb collection, for his acquaintance with it may be termed little short of remarkable, conversant as he is with every plant and every flower. Considering that twenty-two structures do not afford any too much accommodation for these denizens of other climes, it will be acknowledged that in saying "remarkable" there is not the least exaggeration. These houses are all beautifully built, and kept scrupulously clean throughout. Each pot, each stage, each rafter, each pane of glass, is in the best of condition, and shows the unremitting attention and care that are devoted to them. Another notable point is that each plant is properly and legibly labelled, and every possible precaution taken to preserve correct nomenclature, an example that might well be followed in establishments where plants other than Orchids are accorded a primary position.

Perhaps if this collection is celebrated more for one section than another it is for the *Odontoglossum crispum*. Comprising this are probably all the best varieties in cultivation, and many to be seen here cannot be found elsewhere, at any rate in England. Hundreds, nay thousands, of pounds probably would not purchase many of these. The colours are extremely varied, as also is the form and substance; but almost, if not all, may be said to possess one or more points of more than ordinary merit. Here the form is the point, there the colour, and yonder, again, the substance. But no matter what may be the merits, each receives the same cultivation, and this is of the very best, all being done to insure success that intelligent thought can devise or money purchase.

From amidst such a plethora of splendid flowers it seems an overwhelming task to make a selection; but such is in reality not the case, as some stand so very much in advance of the others, good though all the latter undoubtedly are. The chief difficulty lies in the decision as to which section shall be accorded the premier position, taking it in this instance as the place of honour, and following with others as noted and not in any particular order of merit. Many kinds, too, are not now in flower, and these notes must therefore be taken as representative of the flowering section at the present time, and not of the collection as a whole. An opportunity may arise of seeing these Orchids at another season, when doubtless numbers of others will be found worthy of note.

Surely no one will object if we put the *Odontoglossum crispum* at the head of the list, for of these the selection is well nigh, if not quite, perfect. First of all we must mention *O. c. apiatum*, probably the finest spotted variety in cultivation. The form, substance, and colouration of the blooms are superb, and the same may well be said of the spike. *O. c. Lowianum* is of a very much smaller size, but of a beautiful colour, and may yet improve. Another pleasing variety of this section is *xanthotes*, which has occasional yellow spots on a creamy white ground. Others there are all good, and worthy of mention, but which must be excluded on account of the scarcity of space and adjectives, both absolutely essential in dealing with these Orchids.

But the *Odontoglossums* cannot be quite so briefly dismissed, as there are many of other than the *crispum* section of singular beauty. A grand form of *luteo-purpureum* attracted much attention, as also did *Wilckeanum*. Such *Odontoglossums* as *coronarium*, *ramosissimum*, *cirrhosum*, and *excellens* are well known and deservedly highly appreciated. With these we must leave the section, and pass on to others that if not quite so perfect are still worthy of the best possible attention. All these plants, it may be mentioned, are in the most excellent health.

Let us now glance at the *Cypripediums*, which it is perhaps superfluous to say are extensively represented by all the best varieties and hybrids in cultivation. Prominent here is *C. Lawrenceanum* *Hyeaenum*, with its green and white flowers of grand shape, and which compel admiration. Then we have the charming *bellatulum*, the superb *Stonei*, the beautiful *laevigatum*, and the popular *Lawrenceanum*. Beyond these may be noticed a handsome flower of *C. Chamberlainianum*, a variety that varies greatly in the twisting of the petals, and a good form, of which is portrayed in the woodcut (fig. 76). In addition to these *macrochilum*, *grande*, *Schröderæ*, *Mastersianum*, and *calanthum* were all conspicuous for some good point or other, in one perhaps of colour, and another of form. Though not in flower, some splendid plants of *Stonei platyænum* are well worthy of a line as denoting such health as makes good blooms a certainty.

Placed on a stage in a cool house were a few Orchids in flower, and a *Cattleya Mendeli* amongst these was grand indeed. The petals were 3 inches in width, and of a charming shade of rose, this also being the colour of the sepals. The lip was of very intense deep rose, the yellow of the throat being edged white and striped with chocolate brown. It was also very finely fringed. In the same structure was a plant of *C. Skinneri alba* carrying large numbers of flowers. The *Mossiae* section of the *Cattleyas* was replete with many varieties, and several of the plants were blooming admirably. A plant of *C. Wagneri* was also conspicuously attractive.

Laelias made a really grand display, the flowers being large and exceptionally rich in colour. Here again we are beset with diffi-

is amongst the best, but is said to be difficult to grow. *D. infundibulum*, *D. macrochilum*, *D. m. Deeri*, *D. Farmeri*, and *D. densiflorum* are all very beautiful, and mostly fairly well known. There were in addition to these many others, notably the chastely beautiful *D. Bensoniae xanthinum*, with which we must leave the section.

Passing on we come to the *Masdevallias*, which make one of the brightest displays of all. The colouration is so good, so diversified, and the plants so well grown that they make a show of themselves. All the best forms are to be seen, and one of the most striking is *Houtteiana*. A plant of this in a 12-inch basket is carrying upwards of 220 blooms. Others are *Kimballiana*, *Harryana* in variety, *Veitchi grandiflora* (superb), and *amabilis*.



FIG. 77.—CATTLEYA MENDELI PRINCESS OF WALES.

culties of one kind or another, so must pass on briefly. Of course, *L. purpurata* in variety are the most showy, but *L. elegans* made a most pleasing diversion. *L. purpurata Sanderiana delicata* is a very beautiful variety with too much name, while *L. pumila* is a pretty flower with one much handier. *Laelio-Cattleya Hippolyta* represents the bigeneric hybrid section, being the result of a cross between *L. cinnabarina* and *Cattleya Mossiae*, both of which may very readily be seen, but especially the former, in the sepals and petals.

It was unfortunate that many of the *Dendrobiums* had passed their best when we visited The Dell, but sufficient remained to give an idea of what might be seen at various times. *D. nobile* and *D. Wardianum*, of which all orchidists who know it will say Baron Schröder's form, as depicted in fig. 78 (page 454), is one of the best, are found in numbers. *D. McCarthyae* of those now in bloom

Vandas, of course, are to be seen in goodly array, *suavis*, *tricolor* and the charming *teres* being in magnificent condition. A little gem is *Vanda coerulescens Boxalii*, while a white variety of *teres* grown here would be very difficult to beat. Most prominent among the *Oncidiums* was *macranthum*, a plant of which has flower spikes several feet in length, and *fuscatum*. The Fox Brush Orchids are beautiful, especially *Aërides Fieldingi*.

Of the *Coelogynes* little can now be said, but the celebrated plant of *Dayana*, that attracted such an extraordinary amount of attention at the Temple Show last year, must have a word, and as for the plants of *cristata* varieties, they have doubtless been a perfect picture a short time ago. Plants of the well-known *Ada aurantiaca* may be seen affording variety. Useful for this purpose is *Epidendrum James O'Brien* with its richly hued blooms, and

Spathoglottis Kimballiana, which is very bright yellow in colour. A specimen of *Sobralia xantholeuca* throwing up a perfect forest of growths is said to be the largest known, while another of *S. macrantha* is but little less in size.

The *Phalænopsis*, though not now in flower, are in the best of condition, and full of promise for future beauty. More curious than pretty is *Marmodes Medusæ*, but *Trichopilia suavis alba* is really charming. With *Saccolabium ampullaceum* we must conclude our notes. Again let us express the hope that an opportunity will arise for The Dell to be revisited, when it cannot be doubted that "The Baron" and his genial gardener, Mr. Ballantine, will have done their best to keep this collection in the unique position that it at present occupies amongst Orchids.

BURFORD LODGE.

EVERYONE interested in Orchids, even to the smallest degree, will have heard of Burford Lodge and its genial owner, Sir Trevor Lawrence, Bart., to whom the Royal Horticultural Society, of which the Baronet is the energetic President, and Orchid growers generally owe so much. There is rarely a meeting passes at the Drill Hall at which Sir Trevor may not be seen, and Temple show time usually finds him at his busiest in earnest endeavours to make everything a success. This interest in the society is most praiseworthy, and it is to be hoped that the R.H.S. will long have the benefit of it.

Nestling under the side of a hill clothed with trees Burford Lodge is naturally an ideally situated estate, and well worthy of the attention that is bestowed on it by Mr. W. Bain, the head gardener. Though the visit was to see the Orchids, the opportunity was taken of a glance at the outdoor flowers and also at the glass department, and all was found in a very creditable state. Amongst the plants were noticed many of which may be termed botanical curiosities, and are very rarely to be seen in general cultivation in private establishments. Curiously enough the only fruits

As we found Mr. White so busy amongst the *Masdevallias* we cannot do better than give them first attention, especially as they occupy the leading page of some almost unreadable notes. Though the latter are bad the plants are good, and occupying as they do a little lean-to structure to themselves make a surprisingly bright and pleasing show. The freedom with which they flower, combined as it is with strong growth, is exceptional, as it frequently occurs that strong plants produce very few flowers. Here, however, the attention and culture are so good that the plants leave little to be desired. The varieties are extremely numerous, and include the rare *Shuttleworthi*, the charming *lutea oculata*, the peculiar shaped *conchiflora*, besides *miniata* with its scarlet flowers, the well-known *Veitchi fragrans* with its sweetly perfumed flowers, and the hybrid *Mundyana*. But enough of these. We must pass on.

Turning to the Slipper Orchids, we must place *Cypripedium Stonei platytænum* in the premier position, for undoubtedly it is well worthy of the honour. The Burford Lodge plant is splendid indeed, and carrying flowers the superior of which we have never seen. Close by we see *Stonei*, with which the preceding was imported, and the difference is as marked as it well can be. Passing on we stand shortly before what is probably the finest specimen of *C. grande* in the kingdom. Owing to the freedom of the growths we could not measure the pot; but it was evidently well over 27 inches in diameter. This big receptacle was placed on a revolving pivot so that the plant could be readily turned to allow of all sides being readily approached. *Hookerae volonteum*, *Swansianum superbum*, *tonsum*, *Lawrebel*, and *Elliottianum* were also seen in our perambulation.

Dendrobiums are here seen in splendid condition and also in goodly numbers, many varieties, of course, not now being in bloom. Still, several remained that were worthy of note. Of these *D. Jamesianum*, a well known and highly esteemed variety, *D. Parishii*, and *D. secundum album* may be mentioned. Before turning to other flowers a word of mention must in justice be accorded to the winter-flowering section of the *Calanthes*. The plants of these have recently been potted, and the strong growths that are now pushing denote the splendid health of the plants, and give ample promise of an abundance of flowers in the proper season.

Now to the *Odontoglossums*, which have a home indeed at Burford, that is if strong growths, leathery leaves, and handsome spikes may be taken as a criterion, and certainly we do not see what more need be desired. Particularly beautiful are several plants and forms of *citrosimum*, of which the range of colouration is very wide, the flowers and spikes being of good size. Several forms of *O. crispum* are grown, and, what is more, thoroughly well. One of the best *Odontoglossums*, and which attracted a great amount of attention a short time back when exhibited by Sir Trevor, is *O. Ruckerianum splendens* (fig. 79, page 455), which, as may be seen, is a charmingly spotted form. *Andersonianum* is also very fine, and the same may safely be said of *maculatum*, *Pescatorei*, *Halli*, and *polyxanthum*. In the *Odontoglossum* (*Miltonia*) *vexillarium* sections there are a good number of plants, all looking remarkably well, and many carrying good spikes of bloom.

Of course *Cattleyas* are very extensively grown, and comprise all the best forms procurable in the various sections. *C. gigas*, though not in bloom, are in the best of condition. *Mendeli* are now in grand form, and many cannot fail to attract attention and elicit admiration, and to *C. Mossiæ* these remarks are equally as applicable. Worthy of special note are the *C. Lawrenceana*, of which some superb flowers were noticeable. The colour and form of many of these were alike particularly good. It is unfortunate that more space cannot now be devoted to these *Cattleyas*, they being so well worthy of more extended attention; but it cannot be helped, so we must dispose of them in this curt manner for the present at least.

A richly coloured variety of *Lælia purpurata*, justly named *nobilior*, next claims notice and laudatory expression, for its flowers are amongst the finest we have seen. This form is also represented with other varieties of merit, but these cannot have individual attention. Very charming is the rose-hued form of *L. majalis*, while the *Lælia Cattleya* tribe is well shown in *Phoebe*. *Aërides Fieldingi* and *Kimballiana* with *Phaius Sanderianus* each give strength and variety to the collection already so complete in its diversified beauty.



FIG. 78.—*DENDROBIUM WARDIANUM*, BARON SCHRÖDER'S VAR. (See p. 453.)

grown under glass are Peaches, Nectarines, and Strawberries, and the fine condition of these testify to the ability of the grower.

Entirely distinct is the department devoted to the Orchids, and it may be said that these occupy a very large proportion of the glass houses on the place. Here Mr. White reigns supreme, having the complete charge. On our arrival we found him busily engaged preparing plants for the Temple show, and many readers of the *Journal of Horticulture* will, ere now, have seen the splendid group he staged, and which so well upheld the name of Burford Lodge and his own as a first-class cultivator. Apparently he was relieved when he learned that the visit was to be a brief one, as it was evident he was anxious to return to his work. Not that there was any hurry; on the contrary, no one could have been more courteous and attentive than was Mr. White in giving all the information in his power. When the time for departure arrived we left with a feeling of regret that the stay could not have been longer, but brightened by our conductor's invitation to repeat the visit any time we liked. This was good, and we shall take him at his word.

"That plant has been constantly in flower since last Temple show," said Mr. White, pointing to a specimen of *Epidendrum Wallisi*, and what could we do other than make a note of it? There must have been many hundreds of individual flowers, and more remarkable still is the fact that there are yet many to expand. Equally interesting is a plant of *E. Stamfordianum*, carrying thirteen handsome spikes. Going now from fine plants to fine names we have *E. Frederici Wilhelmi*, which may safely be said



FIG. 79.—ODONTOGLOSSUM RUCKERIANUM SPLENDENS. (See p. 454.)

to have a distinct German twang with it. Two more only were noted—namely, *E. bicornutum* and *E. Randi*, both of which are charming.

With one or two others we must draw to a close. *Vandas* *suavis* and *tricolor* are grown in such a manner as to allow one to say that they are perfect, as also are the *V. teres*. In addition to those enumerated there are numerous kinds that ought to be accorded a position, but space forbids. Let us hope that when next we make a pilgrimage to Burford Lodge we shall find Mr. White less busy, and also that we shall have no Temple show in the foreground to preclude our giving the amount of space that is so thoroughly deserved.—W.

DENDROBIUMS AND CATTLEYAS.

PLEASE inform me how *Dendrobiums* showing for flower should be watered, and what temperature ought to be maintained. Must the stems be syringed occasionally? I should also like to know if establishing imported Orchids, or those which get into a bad condition, is a chance operation. I have been trying to re-establish a *Cattleya*, but there is no sign of a root, although I keep the crocks moist. What more can I do?—W. C.

[*Dendrobiums* when showing for flower, especially the section with long cylindrical stems like pseudo-bulbs, ought not to have much moisture, either at the roots or in the atmosphere, until the flower buds can be distinctly seen, after which a little more is necessary. Many of the deciduous species, such as *D. Wardianum* or *D. Bensoniæ*, *D. crassinode*, or even *D. nobile*, must have very little water until the growths are well advanced and are commencing to root. The evergreen kinds, as *D. densiflorum*, *D. thyrsoflorum*, or *D. chrysotoxum*, will need more, or shrivelling of the pseudo-bulbs will take place, thus weakening the plants. The stems during hot weather may frequently be lightly syringed with advantage, especially at closing time, but never until the buds can be seen nor after these are showing colour, the former tending to the production of growths instead of flowers, the latter causing spotting of the blossoms. They must never be syringed on dull days or watered more than is absolutely necessary. A suitable temperature will be 60° by night, 70° to 75° by day with sun heat.

There is a great difference in establishing a newly imported *Cattleya* and resuscitating one that has got into a bad way under

cultivation. The former plants have a good deal of innate vigour, and are simply shrivelled for want of heat and moisture; the latter, on the other hand, has perhaps borne years of ill-treatment and gradually got into a weakened condition, from which they seldom recover. *Cattleyas* and *Lælias* are possibly more difficult to bring round from this condition than any other Orchid, and it is often the best plan to throw them away, procuring healthy plants, which may be purchased at a very reasonable rate. If, on the other hand, your plants are newly imported you have only to carry out the instructions given from time to time in this Journal, and with a little patience all will be well. Very often the growths come in advance of roots, and when the former are a couple of inches in length you may place a little peat and moss over the crocks, watering carefully at first, and screening the plants from bright sunshine.]

APPLE BLOSSOM.

Now that signs are becoming apparent of the vegetable and fruit garden being made more than it has been a place for sweet flowers, the need of studying the capabilities of the Apple as a decorative subject is forced on us. Whether employed as espaliers, bushes, or as standards, those selected for borders by the sides of walks will require to be carefully chosen. I planted the sides of a 400-foot walk three years ago, and the trees are now sufficiently grown to be most effective, and at the same time to show that for this purpose one good variety is better than a number. While I write the flowers are studded thickly from base to tip of the little trees, and without break from one end of the row to the other. If more than one sort had been planted, and the various shades of blush and of white chosen, it would have been necessary to have arranged them so as to have the whole mixed in the same way all through; and, above all, to plant those only that would flower simultaneously.

There are, however, some kinds, free and certain croppers, that also stand out in a prominent manner for the beauty of their flowers, and it is from these that particular portions of the garden ought solely to be planted. No varieties are more beautiful than Lord Suffield, Keswick Codlin, Manks Codlin, Adams' Pearmain, and Cornish Aromatic. The first and last named have large flowers, the other smaller, and each possesses something of the beauty of the wild Crab. There are many varieties with blossoms of a faint blush which are also very beautiful; some of these have flowers of a very large size. Amongst the best I name Stirling Castle, Warner's King, Ganges, Loddington, Ribston Pippin, and Tower of Glamis. Those white, or almost so, are, as a rule, not so effective as the blush kinds, and of course they, in the degree that the white is pure, differ in an essential manner from Apple blossom as a shade. Ribston Pippin is sometimes white, Early Julyan nearly so, as also Lord Grosvenor, but this is not certain every year to flower profusely. Duchess of Oldenburg is fine, but the finest white of all is Devonshire Quarrenden. Its long shoots are wreathed with clusters of pure white. This, with Keswick Codlin, Lord Suffield, Adams' Pearmain, and Manks Codlin are the finest out of a very large number grown here.

I have seen it somewhere remarked that green-skinned Apples possess coloured flowers, and highly coloured Apples white blossoms. This, indeed, obtains to some extent, but it is not a constant rule. Queen Caroline and Lord Grosvenor are examples of white-flowered varieties, and Irish Peach of a blush kind. There are a number of late-flowering sorts that come in towards the end of the Apple-blossoming season. These are certain croppers. They include Fearn's Pippin and Court Pendu Plat, though their flowers are not effective; Alfriston, pretty; Northern Greening, the blooms of which when expanded are flat and not cupped like other Apples; Stewart's Seedling, a very dark flower; and Nelson's Codlin, perhaps the most attractive of all the late-flowering kinds. Rymer has the largest blooms of all the Apples we grow; the tree, moreover, scarcely ever misses a crop, but the foliage is so early that the clusters are almost hidden. Some kinds, again, produce flowers that are, to say the least, not very attractive. Among these are such popular sorts as Worcester Pearmain, Winter Hawthornden, and Ecklinville Seedling.

I may be allowed to note the great beauty of the strictly decorative Apple, *Pyrus Malus floribundus*, which has much the darkest flower among these.—B.

TWICE TEN THOUSAND TULIPS.

No; "alliteration's artful aid" is not brought into requisition in the headline for the purpose of effect, nor as a mere freak of fancy, but because it represents a simple fact in condensed form, which, being interpreted in prosaic amplification, means that 20,000 Tulips were seen flowering in the Long Ditton nursery of

Messrs. Barr & Son towards the middle of last week. "Then, why not have said so without so many tinkling 't's'?" That, it may be assumed, is what some sharp critic of the "Saynor" type may be asking. Well, let him try to accomplish the literary feat, and if he succeeds not, to at once admit the necessity of the predominating consonants in the interests of veracity. But, again, it may be urged that the number of Tulips indicated is nothing extraordinary, that nearly as many may be seen in some of the London parks earlier in the season, and more in some market growing establishments, to say nothing of the hundreds of thousands of blooms glittering in the sunshine in the bulb farms of Holland. Granted, but with an important qualification, that they are not the real, true, genuine, English florists' Tulips, of which the Ditton collection numbers nearer 30,000 than 20,000, or probably the largest assortment in the world.

Yet two other questions may be asked. 1, Why are they grown in such numbers? 2, Why are they accorded the specific designation—English? To the first question it may be said that they afford much pleasure to the senior bold bulbarian and to his son Mr. William Barr, who knows them and grows them so well. But this is not all, for others, many others, enjoy them too, and find their way to the canvas-covered beds at Tulip time. Nor is that quite all either, for it would seem as if a compact had been entered into and a determination arrived at to popularise these very distinct, often erratic, certainly beautiful, and in some respects wonderful flowers, and to distribute them far and wide. And why not? The desire is perfectly legitimate. It was, to say the least, a bold step to buy collections, large or small, named and unnamed, at home and abroad, wherever obtainable, when the flowers were, if not on the down grade, certainly *not* in demand.

And then the after labour in marking, sorting, selecting, rejecting, classifying, and naming has been such as few could conceive, and not one man in ten thousand would undertake and carry out as Mr. William Barr has done. Only an actual deep-seated love for the flowers and a sense of duty in attaining the object in view could have impelled him to persevere with untiring persistency year after year, for assuredly he could have spent his time more profitably if profit had been his immediate object. If ever this highest type and most distinguished class of Tulips should become popular and generally grown in gardens the result will be due to the critical acumen, care, patience, activity, and industry of this ardent young Tuliparian more than to any other man; and if, perchance, he should at some distant day find the pursuit a commercial success, it will have been so well won that no one will begrudge him its enjoyment.

But to the second question, Why are these particular Tulips called English? The answer is very simple: Because they *are* English. All the best florists' Tulips at Ditton and elsewhere have been raised by English amateurs. They are the result of fertilisation and years of care in preservation and waiting for the development of their final characters. There are florists' or amateurs' Tulips in their "broken" form, as bizarres, with their golden ground and rich crimson to black markings; bybloemens with their violet, purple, or maroon colouring on a white ground; also the translucent roses, the white of which is more or less covered with the most delicate tracings of rose crimson and soft scarlet—there are varieties of all these, not of English but Dutch origin; but it is rare to find one having the short smooth cup and clear basal disc of yellow or white that invests the flowers with value. Some of the Dutch flamed and feathered Tulips are showy enough, but in most the petals are too long, thin and irregular, while the flakes of colour run down to the base of the cup. These are faults which the true English fancier cannot endure. The clear central disc is the hall mark of excellence, and while the seedlings are in the self stage imparts to them their value and beauty—in fact some of them are so charming that it seems almost a pity they should change. Yet change they will, and do, sooner or later; but no one knows when nor what they will be when the mysterious transformation occurs. This breaking is sometimes a sudden, sometimes a deliberate process. In rare instances the colouring is first seen as if through a cloud; in others one or more petals may gain a year's start of the rest, then comes the period of rectification. Moreover, there is to the trained eye a change in the leaf when the breaking is in process, and then does the florist watch with interest the unfolding of the petals, as he may have a gem of the first water, or on the contrary he may have simply lost a charming "mother" flower by this change.

Just as Tulips are slow in showing their true character, so are the majority of persons who admire the flowers for decoration slow in turn to appreciate their highest attributes. It is as well so, or what would become of the varieties that are lacking in some of the essential properties which the advanced amateur seeks? These, in many respects beautiful fugitives, may be regarded as so many letters in the Tulip alphabet which play an initial part in

floral education. The learner of music does not at first purchase the most costly instruments, but is content with those of moderate price. So it is with flowers, including Tulips, and these are classed to meet the means of beginners in their culture. Time and the superior examples exhibited by experts at shows, or in home collections, do the rest, and the new growers, if their love is strong, gain knowledge as they go, and eventually "break" into florists. There is choice enough in Tulips in the Ditton collection, not alone in the English florists' varieties in the various grades, but in the gay "Darwins"—valuable for borders and cutting, the gorgeous Gesnerianas, the delicate "Picotees," the quaint "Parrots," and sundry others, but while all are beautiful, and have their admirers increasing in number yearly, the refined and correct English florists' Tulips bear the palm, or did a week ago, but they are practically over now. Varieties cannot be usefully named here, as price is a governing factor, and both the cheapest and the rarest can be found in lists which all who may desire can obtain and make their own selections.

BOTHIANA.

HABITS.

(Concluded from page 422.)

RELEVANT to the subject of bothy studies, and not unconnected with this, is the necessity of working on a plan—a system. This has been previously alluded to. I refer to it again, as it is a matter in which I should like to assist you. Yet it is one for which no hard and fast lines can be laid down, so varying in character are persons, places, and circumstances, and in all cases, for obvious reasons, it must be more or less of an elastic nature. This is its weak point. To counteract this do not fail to mark progress periodically, weekly or monthly. Pause on these occasions; sit in judgment on yourself and your efforts. This habit of reviewing will be of material assistance, and enable you to continually adjust the burden to your strength and opportunities. Do not let your mind be deprived of that rest which is its due on the seventh day, nor allow the freedom of bothy life to lure you from the observance of those duties you have paid respect to at home.

We are advised not to judge the man by the coat that he wears. This advice will never prevent criticism. Then court the verdict of common sense. Choose some good, honest tweed, suitable to your work and your means. Never allow the want of clothes to present itself to your mind until the means of payment is in your pocket. Have nought to do with the credit system. Pay as you go for everything, and you will pay the least and obtain the most for money. Acquire the habit of neatness in dress, and of tidiness pertaining to your belongings in the bothy. This is too often disregarded, but means much to all concerned.

I do not think a young man is rightly imbued with that respect due to himself and to his superiors, who turns out morning after morning with dirty boots and a general appearance of deshabbille, daily increasing till Sunday brings a grand cleaning up. Clean up those boots every night, lad! Are they wet? Have two pairs, one off, one on. This is economy. You cannot afford to despise economy. Endeavour to have a margin over your expenses, however small.

"If youth but knew what age would crave,
How many a sixpence it would save."

Ah! but age is a long, long way off, you will say. True, but remember the subject: Habits.

Have you ever heard of the Gardeners' Royal Benevolent Institution? Inaugurate, when bidding farewell to the bothy, your new dignity by becoming a member of it. Do, I beseech you, for your own sake, for pity's sake, of some worn and weary brother, whom you can aid with your votes. Am I anticipating? This is not relevant to bothy life. Then make it so; begin at once and you will not begin too soon. Anyway, let it be a thank-offering when you become a head gardener, and a tangible possibility to lean on in the future. It appeals to the highest and noblest of human feelings. It has a moral claim on your sympathy. I cannot think that you, you that have followed my humble endeavour to assist you in your journey through bothydom, are devoid of this feeling. No, it cannot be! Then you will not refuse.

My bothy career was commenced when a wave of the temperance crusade swept through the county where I had migrated to. I was engulfed in it, became one of "them teetotallers," and remained so for the bothy period. After many years, now, in calm reflection I come to the conclusion this was not a mistake. The subject is one of principle, but embraces a far wider field than that of temperance; that phase of the question may present no temptations to you, nor did it to me. Here I offer

not any advice to you. Take my moral for what it is worth, and draw your own conclusions.

Other points there are I would fain have touched on, but must not further encroach on space. In conclusion, I ask your indulgence for any weak expression of those thoughts which have prompted this; some, indeed, are too deep for words. I can but hope some help has been afforded you to arrive at that stage of the journey where "the high seal of character is set," where the "Olympic prize" awaits you. If so, you can then stand a little aside from the hurry and crush of a restless world, seeing things as they are, not as they seem; neither discouraged by petty vexations nor unduly elated by success. Wisdom shall guide you through the deeper waters you are entering on, whose "ways are ways of pleasantness," whose paths "are paths of peace."—AN OLD BOY.

BLACK STRIPE IN TOMATOES.

THE affected specimen arrived in good condition for examination, and being a full-sized fruiting example, with some of the fruit commencing to ripen, is characteristic of the Tomato plant as affected with the disease known as "black stripe," which corresponds with "the Tomato rot" of the United States pathologists, an excellent account of which may be found in the 1888 report of the United States Department of Agriculture, pages 339-346, by Mr. B. T. Galloway. The disease, however, was known in this country long before that, our first acquaintance with it being in the year 1873, when we had it very disastrously on some Tomato plants grown in pots in Peach houses, and still worse in 1875 on plants outdoors.

The plant examined was perfectly normal at the roots. There was no trace of eelworm, but on the stem where the radicle issued from the seed there was a dark stain, and it extended upwards, being ultimately lost in the vascular tissues. Following the stem upward the dark stripe or long blotch appeared here and there, being most pronounced at the ties, but beyond the discolouration of the tissue and the destruction of the epidermal cells there was nothing discernible. The hairs, however, were very abnormal and much contorted, the cellulose or cell wall appearing as fine threads, and mentioned, as they must not be confounded with the prostrate hyphæ or filaments of fungi.

Passing on to the leaves, each consisting of several leaflets, we came to the yellow stripes or blotches. On subjecting a section through this to microscopic examination we found the cells permeated by a streaming body, slightly darker in colour than the cell fluid, and easily detected by anyone conversant with cell structure and cell contents. This tissue ultimately becomes brown or black. The streaming is that of an amœboid-like body, but it is more that of the micro-organism. There is no hyphæ recognisable in these cells, but I have no doubt the micro-organism is the plasma of a fungus, which may or may not at a subsequent stage develop hyphæ, and from this erect filaments or outgrowths, producing the characteristic reproductive organs and seeds (spores). This is a new phase of fungus life, some may say, but it was noticed by the Rev. M. J. Berkeley in 1848, and it certainly is that of a myxomycetes growth, which indicates the evolution of fungi from the slime fungi, so-called, or myxomycetes.

Examining the drooping tips of the young shoots we came across the same organism as discovered in Mr. Iggulden's specimen a short time ago, and this is *Plasmadiophora tomati*—the "drooping disease" of the Tomato plant, and known in the case of the Vine as "brownure" or "browning," about which I have nothing "new" to relate, but the procedure given on page 360 will render a good account (to the cultivator) of this micro-organism, and possibly of that known as "black stripe." Indeed, it may ultimately be shown that the "drooping disease" is merely a stage in the development of "black stripe," but the fact remains that "brownure" or "browning" cannot be transformed from a myxomycetes into a fungus. A myxomycetes can only produce a cell—a surrounding wall of cellulose to the contained protoplasm, which emerges as a zoospore; while "black stripe" gives rise to hyphæ within the tissues and to outgrowths from these, which produce conidia, and finally resting spores—the characteristics of a fungus. This indicates that the "drooping disease" as produced by *Plasmadiophora tomati* is not the same as that wilting of the young growths caused by the plasma of the "black stripe fungus."

Passing on to the fruit we find the same plasma or body streaming through the cells. There is no hyphæ whatever, and the whole thing is extremely bewildering. But it is all made clear in the generalisation, namely, the disease began (in this case) at the root (Mr. Iggulden pointed that out some time ago), it passed up the stem, appearing here and there, then became manifest in the leaves and finally in the young growth, these wilting and perishing. The fate of the plant is thus practically sealed, but Nature is strongest in that of reproduction, and the struggle for existence begins between the plant on the one hand and the parasite on the other. The fruit, therefore, shows the "black stripe," the tissue becomes discoloured down to that of the embryos of the future seed of the Tomato plant, and the fruit attains to a certain degree of perfection, but is of no value for useful purposes. The germs—so far as I have been able to ascertain these are confined to plasma—of the disease enter the Tomato seed and attach themselves to the testa or part corresponding or near to the protrusion of the radicle on growth taking place in the seed. Thus the disease is carried over from year to year,

and is in that respect hereditary. This characteristic of the "black stripe" has been pointed out by several Tomato growers in the *Journal of Horticulture*, being confirmed by Mr. Iggulden and now by your correspondent, Mr. Arabin.

Now I will ask your readers to go back with me to the Potato crops in this country before the outbreak (?) of the Potato disease in 1844. I can well remember a disease my grandfather called "dry rot," and what he told me of its disastrous effects on the Potato crops at the latter part of the last and beginning of the present century, and his description of "dry rot" exactly coincided with that I have endeavoured to give of "black stripe" in Tomatoes, the "stripe" being as clearly defined in the Potato apple as in the Tomato fruit. The Potato sets only produced a weak haulm, and often collapsed before any tubers were formed but generally the "dry rot" was confined to a plant here and there which produced a few very small tubers, known in the Humber Valley, both in Lincolnshire and Yorkshire, as "chats." They were perfectly sound. The rest of the Potato crop attained the ordinary development of haulm, but sometimes the tops became brown at the tips, the leaves curled, turned brown, and then black, fell off. The tubers were smaller than usual in consequence, and some of them, usually the largest, had



FIG. 80.—PHLOX CANADENSIS. (See page 447.)

reddish marks in them when cut. Such "sets" sprouted very weakly, sometimes produced no growth above ground after setting, or only grew a few inches high, the plant collapsing by the time it was usual to earth up the crop that had grown properly. The "sets" simply rotted in the ground, and as it was early in the summer was called "dry rot" to distinguish it from "wet rot," which occurred about digging up or after they were placed in the "pies." I use the term prevalent in the Ouse (Yorkshire) Valley.

The disease taking the tops of the Potatoes was the "curl," and it was carried over in the seed "sets" and in the "apple," for we grew Potatoes from seed in those days. Then the "curl" died out as small sets were used.

This malady does not materially affect the small tubers; but it gets into the larger and is carried over from year to year, sometimes very little damage being done, and in others no perceptible mischief happens. But under certain conditions the disease does great injury, and being accompanied by the Potato fungus (*Phytophthora infestans*) is apt to be overlooked. American observers have long suspected this fungus as a cause of great loss to Potato growers in America, and it was put forward last year as a "new" disease. It is nothing more than the British "curl" fungus (*Macrosporium commune* var. *Solani*), and the "black stripe" on Tomatoes is only that form of it called *M. c. tomati*.

As the outgrowths of the fungus are only produced at certain stages,

and not even that in some cases, I will pass over that part, as it is not essential for successfully contending with the disease. This is carried over with the seed of the Tomato, and the thing is to begin with that. This is a very difficult matter, as the fungal plasma is internal; but much can be done by saving seed from perfectly disease-free fruits. It may also be possible to destroy the plasma within the seed by steeping the seed in a solution of corrosive sublimate, sulphate of iron (not sulphate of copper), or even nitrate of soda or kainit. Anyone can test the matter for himself by using (1) corrosive sublimate, finely powdered, 2 grains (apothecaries weight) to 1 gill (quarter of a pint) of water, bearing in mind that this solution is a terrible poison; (2) sulphate of iron, three-quarters of an ounce (avoirdupois weight) to 1 gill of water, allowing the seed to remain in the respective solutions one hour and a half, then remove and sow at once, treating in the usual manner. If, as I anticipate, the plasma of the fungus is within the outer coat of the seed it may take a longer time to reach it; but as a rule the time named is sufficient to effect its destruction, especially when the integument is thin, as it usually is, where the fungus lies dormant.

As regards soil treatment there is nothing better than a peck of air-slaked, or even freshly slaked lime per rod, distributing it evenly and pointing in lightly, or not that when likely to interfere with the roots of the plants. For the part of plant above ground, air-slaked lime, 100 parts, and carbonate of copper (precipitated) one part, thoroughly mixed and distributed over the foliage with a bellows apparatus, so as to coat every part of the plant with the finest possible film, will give a good account of any outgrowths, thus preventing the spread of the disease, also making sure that no fungus whatever can germinate externally and push the germinal tube of its spore into the Tomato plant. If a liquid is preferred, use Bordeaux mixture, half strength. —G. ABBEY.

A VISIT TO THE REV. F. D. HORNER, M.A., BURTON-IN-LONSDALE.

BRIGHTLY was the sun shining as we approached the houses wherein were staged some of the most beautiful of Flora's gems. Directly we got inside and viewed the Auricula bloom generally the mind was deeply impressed with the exquisite display of rich tints and soft shades.

The blinds allowed a little sunlight to stream in here and there, lighting up the colours and showing charming variety of tint and depth of colour, though the subdued candlelight of last night's preliminary peep was more favourable to a careful examination of the merits of the flowers, as it was to the due appreciation of their delicious aromatic fragrance.

The season having been such an unkind one the plants were by no means so healthy as is usual at Mr. Horner's, appearing flabby and short of stamina, due to stunted root action. Though the date was May 4th very many of the green-edged varieties were not open; indeed, much of the bloom excepting selfs was not fully expanded.

Amongst the grey edges, Lustre appeared to be the best. The tube perhaps may not be quite so rich as "Lightbody;" but it has more body colour and is a better balanced flower. In addition to a fine truss of Geo. Lightbody, we noticed Lapwing, Fairy Ring, Harbinger, and Hypatia—all excellent.

Of the white edges, Miranda was most prominent, then Luna, Magpie, Bull's-eye, a new seedling—Bean Blossom, and a very promising Heather Bell; with the portly Meiklejohn nodding close by, apparently about to awaken and open his eye.

Of green-edged varieties, a grand truss of the Rev. F. D. Horner was easily discernible, Chloe and Viridiflora (both seedlings of Mr. Simonite of great merit), and T. E. Henwood were in good form.

Mr. Horner this year seems to have struck quite a group of green-edged seedlings of the highest quality, patient and persistent endeavour on the most scientific lines thus being rewarded. We noticed Verdant Green, the Rev. G. Horner (a fine specimen), Bull Dog (a bold dashing bloom), a fine light green Sparkle, Ossian (very good), and a shapely flower that bids fair to prove a regular Adonis.

Amongst his selfs, Mr. Horner had many of high excellence; indeed, one may safely say of his seedlings generally it is difficult to find a second-rate flower. As the trusses were for the most part fully expanded they were very telling amongst the groups of Auriculas. Favourite, a lustrous violet, one specimen we saw, a sturdy plant, carrying no less than sixteen pips, and towering above its neighbours; Melaine, dark maroon; Rosy Morn, a lovely light shade of cherry red; Enchantress, a fine purple; Black Swan, a chocolate brown with a beautiful tube and clear paste; Charmer, velvety red; Iolanthe, purple; and Florence, grand violet, were very conspicuous. Heroine was past its best. This variety gives its best bloom from a maiden plant. We noticed a wondrous light lavender self with a clear round paste, but a wee bit green in the tube; Symmetry, a beautifully formed flower of light rosy purple, on a healthy mealy plant; Midnight, a magnificent blue with a purple sheen, circular paste, and good tube, amongst the latest of Mr. Horner's seedlings.

Considerations of space prevent more than a passing reference to the glories seen in Mr. Horner's Orchid jungle.

As our authority on the Tulip, Mr. Bentley, was one of the party, it is perhaps needless to state that our host's collection of Tulips was eagerly and closely scrutinised, and pronounced well grown and full of promise. Just a touch of colour was seen on one or two buds, and pious

hopes were indulged in that his crack seedlings may be seen at their best on the exhibition table at the National show.

An evening spent round the fireside, where our quartet of florists met and talked over the flowers, descanted on their beauties, condemned the faults of various sorts, dealing first with Auriculas, then with Tulips, next with Carnations, back to Auriculas, and on went the "gossip of the garden," with many a story of the florists of old and their methods, and many new ideas for crossing suggested, memories recalled of florists that were, until it was time to glance again at the pets in the Auricula house ere we dropped into sleep.—C. W. N.

CUCUMBERS.

THE resolve at which the Fruit Committee of the Royal Horticultural Society has arrived, to invite the Council to have next year a thorough test trial of Cucumbers at Chiswick, is one that must be commended, although no doubt there are some raisers of new varieties to whom the resolve may give pain. The resolution has been arrived at only because it has been found impossible to deal justly with Cucumbers, seeing that what are no doubt new varieties, yet bear to older ones such exceeding resemblance, it is not possible to say from a cursory notice of the fruits whether they differ materially or not.

But whilst with many growers of these assumed new sorts singularly hazy notions seem to prevail as to what constitutes quality in Cucumbers, samples sent being often of the most ungainly and coarse description, some others have thoroughly realised what is quality in these fruits, and have during the past few years put before the Committee sorts of such exceeding excellence, such unquestioned beauty and quality, that it seems as if little or no room really was left for improvement. I almost think that there can be very little such room, because it is difficult to see where improvement can come in. What improvements there are yet to be considered can barely be in colour, form, length, or beauty of the fruits. It is only in growth or cropping qualities that improvements may be looked for, and it is evident that only through a good trial conducted at Chiswick can these improvements be ascertained.

Some twenty years or more have, I believe, elapsed since a similar trial of Cucumbers took place at Chiswick, hence it is about time another was conducted. It is to be hoped that only recognised good old sorts will be grown, as it is evident for summer uses not a few of the old sorts have been quite superseded. There we should like to see not only seedlings shown for the first time this year, but all varieties certificated or put into commerce during the past ten years. Even with this limitation a large trial must take place. It is hoped that all interested in Cucumbers will do their best to make it a success.

Obviously now that the Fruit Committee has come to this resolution it will be difficult, to my mind impossible, to grant certificates to any new sorts this year. That seems to be the only logical outcome of the proposal. One result of the trial it is hoped will be to give to the Chiswick Gardens greater interest in the estimation of the Fellows and horticulturists generally. Whilst testing of various products should constitute the principal work of the Gardens, it is obvious that this work does not receive at the hands of Fellows one tithe the attention it deserves. It seems perhaps too much to ask of the Committees, but it would be well were it possible for these bodies or portions of them, to meet at Chiswick very much oftener than now. Indeed to keep pace with growing produce it seems as if meetings there once a fortnight during the summer would not be too often to enable what is being there grown to be thoroughly examined and dealt with.

Perhaps there may be some desire expressed on the part of Cucumber raisers to learn what sort of excellence the Fruit Committee look for in new varieties. Well, before any person sends out as new anything they may have raised from seed, they should purchase and grow a few of the recognised best sorts in commerce, and thus ascertain for themselves what existing excellence is. Possibly such a home trial would do very much to help raisers to arrive at more correct conclusions. The more recently certificated varieties have given to us fruits ranging from 15 inches to 20 inches long, and these are indeed long enough for any purpose. Dark green in colour, very smooth and even from heel to point; in fact, as perfect as it would seem Cucumbers apparently can be. It is not possible with such sorts in mind to give any sort of recognition to fruits that even if of fair length are almost of large dimensions, very ribbed, wanting colour, and uneven in form.

Then, again, Cucumbers, if ever so handsome and prolific, may be in the estimation of the Committee too short. Thus one of our most successful raisers exhibited the other day a variety that was without doubt singularly prolific, yet the fruits, very handsome, averaged only 12 inches in length. A better variety for home use perhaps could hardly be found, but it was not long enough for market, and to that test chiefly now are Cucumbers brought. But then with regard to prolificacy, there seems to be no doubt but that Cucumber plants have limited powers of production, short fruits being numerous, long fruits much fewer. The short prolific sorts no doubt are best for winter culture, but still the winter culture of Cucumbers is very limited. Generally we have to regard them as summer products, and in that respect good average length must always constitute an important qualification.—A. D.



ROSE SHOW FIXTURES FOR 1895.

- June 19th (Wednesday).—York.*
 „ 20th (Thursday).—Colchester.
 „ 25th (Tuesday).—Isle of Wight (Cowes).
 „ 26th (Wednesday).—Richmond.
 „ 27th (Thursday).—Gloucester (N.R.S.) and Canterbury.
 „ 28th (Friday).—Exeter.
 „ 29th (Saturday).—Windsor.
 July 2nd (Tuesday).—Diss, Maidstone, and Sutton.
 „ 3rd (Wednesday).—Brockham, Croydon, Ealing, Farningham, Lee,† and Sittingbourne
 „ 4th (Thursday).—Eltham and Norwich.
 „ 6th (Saturday).—Crystal Palace (N.R.S.).
 „ 9th (Tuesday).—Westminster (R.H.S.), and Wolverhampton.*
 „ 10th (Wednesday).—Chelmsford, Farnham, Hitchin, and Redhill (Reigate).
 „ 11th (Thursday).—Great Malvern (Hereford Rose Society), Helensburgh, Woodbridge, and Worksop.
 „ 17th (Wednesday).—Derby (N.R.S.).
 „ 18th (Thursday).—Canterbury (Kent Hospital Fête) and Halifax.
 „ 20th (Saturday).—Manchester.
 „ 23rd (Tuesday).—Tibshelf.
 „ 24th (Wednesday).—Chesterfield and Newcastle-on-Tyne.*
 „ 25th (Thursday).—Trentham.

* A show lasting three days. † A show lasting two days.

I shall be glad to receive the dates of other Rose shows than those named above for publication in future lists.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

MARÉCHAL NIEL ON THE SOLFATERRE STOCK.

WOULD you kindly name the enclosed Rose? We have in the conservatory here a Maréchal Niel that has been budded many years ago. The circumference is 10 inches 1 foot from the ground, length upwards of 30 feet, and is quite free from canker. It has been in flower since January, and both varieties flower at the same time. The Maréchal Niel grows excellently. I think the result of such a combination should be more generally known. The “stock” flowers come in clusters, sometimes as many as eighteen in one spray, occasionally five or six being open at once, and others in bud. There were some dozens of shoots like the one sent. The Maréchal is now over.—R. W. SMITH, *Raby Castle Gardens.*

[Mr. William Paul, who has seen the samples, says it is quite clear that this is a case of a Maréchal Niel established on a Solfaterre stock.]

THE N.R.S. SOUTHERN PROVINCIAL SHOW IN 1897.

At the Committee meeting of the N.R.S., held on Tuesday, May 14th, a letter was read from the Town Clerk of Portsmouth conveying the invitation of the Town Council of that borough to hold their southern show there in 1897, and the invitation was accepted with the thanks of the Committee.

ROSES AT THE ROYAL BOTANIC SHOW.

WE notice in your report of the flower show of the Royal Botanic Society, held on the 15th inst., it is mentioned “Messrs. Wm. Paul & Son, Waltham Cross, came second with a group of little less merit,” &c. This is a mistake, which we shall be glad if you will rectify in your next issue, as we did not exhibit in that class, but were given the highest award for our group of Roses—a silver-gilt medal.—WM. PAUL & SON.

MARÉCHAL NIEL ROSE UNDER GLASS.

THE system of growth recommended by “W. R. Raillem” (page 406) is the correct one for this Rose, no matter what “H. R. R.” says (page 430) to the contrary. I can speak with confidence, having tried many plans extensively. At a time when I had an important object in view plants budded on strong Briar stems gave the only good and lasting results, and from these I have cut upwards of 19,000 flowers in one season. Grafted plants gave a few flowers, never so good in quality as the others, and for this reason they never made such free growth.—W. H. DIVERS, *Belvoir Castle Gardens, Grantham.*

EXPRESS GRAPE GROWING.

I HAVE to thank Mr. Innes for his kindly remarks in the *Journal* of May 16th. With much that Mr. Innes writes I agree, but in one point I cannot see as he does. He says, “The only difference in Mr. Thomson’s case and mine was that he did not fruit his permanent Vines and I did, and was rewarded with a crop of first-class Grapes.” Now I see a vast difference in Mr. Innes’ case. He planted his Vines in the middle of August; poor, starved canes, out of 3-inch pots. We planted ours in

May, June, and July, all in splendid condition for planting. They received no check, and did splendidly; all could have borne a good crop the next year if we had wished. I repeat that the remarkable feature in Mr. Innes’ case is, that Vines planted so late, and in such a poor condition, should do so well that they were able to bear a heavy crop the next year. Everything seemed against them at first. Poor little canes out of 3-inch pots, planted late in the season, they yet did so wonderfully well that they bore heavy crops the next season!

We prepared our Vines in the best possible way, had them strong, and splendidly rooted, planted them in good time, and gave them every chance. That they could all have borne a heavy crop the next season is just what we consider the natural result of our treatment; but Mr. Innes’ case is different. The Vines he planted had much against them, and the results he recorded in connection with their vigour, and the crops they bore the very next year after being planted in such a poor condition and so late in the season, are really remarkable. “Market Grower” remarks that the recent articles on “Express Grape Growing” “are of great interest to market growers, showing the wonderful crops that Vines well grown can carry.” I would remark that Mr. Innes’ first article was of greater interest because he showed what wonderful crops Vines, badly grown, could bear the next season after being planted so late as the middle of August. When I say “badly grown,” I am only judging from the description of the Vines given by Mr. Innes himself. Had they been “well grown” they would have been considerably thicker than straws by the middle of August, and 3-inch pots would not have contained them. However, “all’s well that ends well,” and we must regard these Vines as wonderful samples of Mr. Innes’ skill as a Grape producer. “Market Grower” draws attention to a point in Grape culture for market that I have several times referred to when writing to the gardening papers, and that is the vast difference between well ripened and finished Grapes and badly ripened ones. They are as different as possible, and the British public that only knows the taste of an overcropped, badly ripened Black Alicante or Gros Colman can have no idea what a splendid fruit a well-grown Grape really is.

Alicante at best is not a high-class Grape, but Gros Colman can be vastly improved by good culture. If well finished Muscats Duke of Buccleuch, Black Hamburg, Madresfield Court, and others that could be named, are placed before people, then, and not till then, will Grapes be properly appreciated. Of course it may be urged with much reason that cheapness is much looked to by the public, and that if they get Grapes of any kind cheap they are satisfied. Until the public taste becomes sufficiently educated I fear they will be inclined to rest content with badly finished Alicantes and Gros Colmans, when they might have the same in better condition if they knew to encourage the proper culture of these varieties, and to refuse to be supplied with samples of them that contain little of the virtues they might possess if well grown.

Gros Colman is much more capable of being improved by proper culture than Black Alicante, yet even the latter can be made more palatable by good culture, and it should be put before the public in as good a condition as possible. Over-production seems looming in the immediate future in connection with Grape culture, but it would lessen the over-production of inferior quality Grapes if the public were able to discriminate between well grown and badly grown samples. As one who desires that Grapes of all kinds should be supplied to our markets in first-class condition, I hope that the future will see a great improvement in the style of those generally sent forward for sale, and that every year less of the inferior quality of Grapes at present so much in evidence may be placed before the public.

If Mr. Innes will exert himself in this direction he will be assisting to benefit the public at large. My desire is to see them well supplied, not only as regards quantity but quality.—JOHN THOMSON, *Clovenfords.*

[A communication from Mr. Innes did not arrive in time for insertion in our present issue.]

FRUIT AND EARLY VEGETABLES IN THE CANARY ISLANDS.

THE usual monthly dinner and conversazione of the Horticultural Club took place at the Hotel Windsor on Tuesday evening last week. There was a good attendance of members, the chair being occupied by the Rev. W. Wilks. The discussion after dinner was opened by Dr. Morris with a very interesting address on the “Cultivation of Fruit and Early Vegetables in the Canary Islands for the English Market.” Of these the principal were Tomatoes, Potatoes, and Bananas. Oranges also are cultivated, but at present not to any large extent. Those produced are of a very superior quality, allied to St. Michael, if not identical with it. He described in detail the Tomato culture, the manner of packing, and the arrangements made with the growers for the sale and exportation of the fruit. He also described the method of irrigation, the most essential point of the whole culture in the Canary Islands; the care which was taken, the laws that regulate it, and the way it is supplied. The Tomato has, however, there, as in other places, been subject to disease, which threatens seriously to interfere with it, and therefore he regarded it as simply of temporary culture. The Canaries have been subject to these changes.

Their palmiest days were when the cochineal insect was the great industry. The discovery of the aniline dyes completely extinguished it, as effectually indeed as did the Coffee fungus the chief industry of Ceylon. Dr. Morris stated that there can be no doubt that the fungus

which attacks the Tomato is identical with that which plays such havoc with our Potato, both being allied plants. He also spoke of the cultivation of Potatoes, and stated that the chief variety used was the Magnum Bonum. In many places the culture of the Banana had been introduced very successfully. He does not know how it may be in the future, but at present the smaller subjects for garden cultivation, such as Lettuces, have not been attempted.

A very brisk and animated discussion took place afterwards, in which most of the members present joined, especially Messrs. Webber and Monro, who gave some interesting information as to the prices obtained for these articles in Covent Garden. A friend of the latter, who had been a resident in the Canaries, gave some very valuable information with regard to the laws relating to tenure, as bearing upon the production of various vegetables. A cordial vote of thanks was awarded to Dr. Morris for his interesting paper, as also for his kindness in sending samples of the Tomatoes and Potatoes for the dinner; as also to Mr. Webber for some Tasmanian Apples for the dessert. Probably no more interesting meeting of the Club has ever taken place.

ROYAL HORTICULTURAL SOCIETY.

MAY 14TH.

SCIENTIFIC COMMITTEE.—Present: Dr. M. T. Masters, F.R.S. (in the chair); Dr. D. Morris, C.M.G., Rev. W. Wilks, Mr. A. Michael, Dr. Russell, F.R.S., Rev. G. Henslow, Hon. Sec.

Wellingtonia with Tumourous Growth.—Mr. Bunyard sent a specimen of a young plant which had produced a large globular woody growth at the base. It was perforated by some beetle, but this was apparently of subsequent occurrence, and had nothing to do with the cause. A very similar structure had formerly been sent in a *Taxodium*. It was forwarded to Mr. Blandford for further examination.

Fungi in Soil.—A sample of soil was received from Mr. Hooper, Cambridge, Waikato, New Zealand, with a communication, stating that the roots of fruit trees which penetrated the places where the fungus appeared to reside became infected, the fungus penetrating the tree from base to summit, and ultimately killing it. It was referred to Kew for investigation.

Nemophila Seedlings.—Dr. Masters called attention to a peculiarity in the cotyledons and some of the leaves of this plant—in that the epidermis appears to become detached in places from the underlying tissue, and gives the appearance of white spots, as the chlorophyll becomes invisible.

Cattleya Malformed.—He exhibited a flower reduced to its lowest terms in having two sepals only, an anther with two (instead of eight) pollen masses, and no pistil, the "inferior ovary" being represented by a stalk only.

Rhododendron hirsutum.—Sir Ed. Loder sent a specimen apparently dying, with the observation that others appear to be in the same condition. Mr. Michael remarked that he had observed how this species is confined to limestone districts, while *R. ferrugineum* is indifferent, and grows both on limestone and granite in the Alps of Switzerland. It is possible, therefore, that the plants require lime, if it be deficient in the garden in question.

Black Currant "Jaundiced".—Mr. Fish sent specimens having a very yellow-green foliage, with a communication of which the following is an abstract:—After referring to several assumed causes—*e.g.*, "sudden changes from heat to cold, drought to drowning, &c."—this case differs from most in the following particulars:—"The jaundice is limited to Black Currants of two or three years of age. The cuttings last year were free from the disease. The field is well drained, and of excellent quality for fruit trees and bushes. I hear at Meldreth that this new disease is more or less prevalent over very wide areas in Cambridgeshire." The best remedy to be tried was thought to be a solution of sulphate of iron, and if this failed only to grow those kinds which appear to resist the complaint—*e.g.*, Black Champion, Lee's Prolific, and the Cut-leaved Black Currant.

Colours of Flowers.—Some discussion arose as to the question of the influence of mineral salts in the soil upon the colours of flowers, Dr. Russell observing that many interesting and profitable results would undoubtedly follow from experiments in this direction. The change from blue to red in Hydrangeas was spoken of when they are removed from maritime to inland places, the general experience being that blue specimens grew mostly by the seaside, and were not altogether attributable to iron in the soil. Dr. Russell suggested the use of a dilute solution of ferro-chloride to test the conversion of the red to a blue colour.

Influence of Salt.—A further discussion arose on the effect of salt. That on maritime plants is well known, being a cause of succulency in many of them, but the injury due to its presence in the case of S.W. winds has been felt at great distances inland, as at Bagshot, upwards of fifty miles away. Dr. Masters described the remarkable result on a Japanese Maple in Mr. Waterer's grounds, in that while one half of the tree on the leeward side grew vigorously and never flowered, the other half exposed to the wind was greatly checked, and as a consequence blossomed, and so enabled seed to be procured from it.

Tulip Abnormal.—Mr. M. Mills of The Gardens, Combe House, Croydon, sent a Tulip of abnormal size and growth, consisting of three peduncles fused together, with leaves 15 inches by 5 inches, the whole being nearly 3 feet in height.

Primroses, Blue-tinted.—Mr. Wilson exhibited (at the meeting held on April 23rd, but accidentally omitted from the minutes) a fine bowl

full of the best of the blue-tinted Primroses; showing a great improvement upon the original forms when first raised.

Photo of Fig.—Dr. Masters showed a photograph of a Fig, possibly *F. Isiela*, *Roxb.*, with its roots forming a perfect network over the stem of a Mango. It was taken in a grove near Lanowlee, Western Ghats, by Mr. G. Marshall Woodrow, College of Science, Poona.

Rosa multiflora, Photo.—M. Vilmorin sent a photograph of a dwarf plant of this Rose, the seed of which was sown on January 15th, and the plant was in blossom on April 11th.

Tendrils on Vines.—Dr. Masters showed the results of his observations on the occurrence of tendrils on branches of Vines containing seven leaves in succession; only certain of the leaves had tendrils opposite to them, but there is no rule as to which should have none. Of seventeen examples, three leaves and one leaf had tendrils five times, or about 30 per cent. Tendrils occurred with four leaves, two leaves, or not at all, twice, or about 12 per cent. In no case did every leaf have a tendril, nor did six out of the seven ever have one at all.

ARGON.

As I see no possibility of saying anything on this subject calculated to please Mr. W. Dyke, I beg to simply direct his attention to a few facts.

1, I did not state in the original article on "Plant-Forming Elements" that "argon enters into the composition of plants," but that "the elements derived from the air are carbon, hydrogen, oxygen, argon, and nitrogen" (page 332).

2, No definite statement has been made by me that "argon is found in plants" (page 435).

3, I have not "quoted" or said that "plants in the first instance lived in an atmosphere of nitrogen" (page 435), but "Evolution points to a primitive atmosphere of absolutely pure nitrogen, there not being any free oxygen, and with only such carbonic acid and water as were evolved from volcanoes, which extended over the greater part of the earth's surface before the first organised beings came into existence" (page 412).

To all the statements given in the articles on the "Plant-Forming Elements" (page 332 and 354) and in that on "Argon" (page 412) I strictly adhere.

Professor Ramsey has not said that argon does not exist in plants, but he says that "probably the process adopted was not suitable for detecting the new element." It took quite a century to detect argon in the atmosphere after its presence had been indicated by Cavendish, and that a similar element obtains in the nitrogen of plant analysis is well known to "anyone with the most elementary knowledge of chemistry." What is this element but argon—extremely inert nitrogen?—G. ABBEY.

[We prefer discussions by practical men on subjects with which they are directly acquainted to second-hand arguments on argon that can be of small service to our readers.]



FRUIT FORCING.

Vines.—*Houses of Ripe Grapes*.—When the Grapes are quite ripe fire heat will only be needed to prevent the temperature falling below 60°, admitting of a free circulation of air, and allowing a little constantly to insure a change of atmosphere and prevent the deposition of moisture on the berries. Do not allow the border to become very dry, but keep it moist and mulch with rather dry litter from which the manure has been removed, and the material sweetened by exposure for a few days to air and rain. The mulching being thin air will enter the border, evaporation, however, being lessened, and the uniformity of the moisture preserves the roots in good condition. Moderate atmospheric moisture is not injurious to the Grapes but highly beneficial to the foliage, which must be kept clean and healthy. Allow a little lateral growth, as this will favour root action and tend to the preservation of the principal leaves, while if anything happens to them it will afford an outlet for the sap, and prevent the starting of the principal buds. If the Grapes are required to be kept some time place a double thickness of herring nets over the roof lights, especially where Black Hamburgs are hanging, in order to enable them to keep their colour. Foster's Seedling and Buckland Sweetwater are also benefited by the netting, as brownish streaks sometimes appear on the golden skin, and more or less deteriorate the appearance.

Early Muscat Houses.—Vines of Muscat of Alexandria started at the new year will be swelling the fruit rapidly, and the berries on the upper side of the bunches exposed to the direct rays of the sun are somewhat liable to become scorched or scalded, hence a single thickness of pilchard or a double thickness of herring nets placed over the roof lights breaks the fierce rays of the sun sufficiently to prevent the injury, whilst not materially interfering with the admission of light. The netting also obviates any danger of damage to the foliage where the panes of glass are large and the means of ventilation inadequate for effecting the requisite change and amount of air in very bright weather,

and the preservation of the foliage in good condition is essential for the perfecting of the crop and the formation of the buds for next season's bearing. Ventilation should commence with the acting of the sun on the house, so that the Grapes will be heated equally with the surrounding air, then there cannot possibly be any scorching, a moderate amount sufficing, by which there is no loss of solar heat; as by increasing the ventilation with the advancing sun the temperature will rise to that required, it being kept at 70° to 75° by artificial means, and 80° to 85° or 90° from sun heat, reducing the ventilation so as to retain this amount during the afternoon. Muscats like a generous regimen, profiting by top-dressings of phosphatic, potassic, and nitrogenous manures, such as obtains in the advertised fertilisers, using 2 to 4 czs. per square yard at intervals of three weeks or a month, washing in moderately after duly moistening the soil and applying the fertiliser. This does little good on dry soil, and leaving it on the surface means the evolving of ammonia from the organic matter and its dissipation in the atmosphere, whilst the other substances cannot be diffused through the soil. Allow a fair amount of lateral growth, as this insures a due extent of root activity, supply of nourishment, and its appropriation. Damp the paths and similar surfaces in the morning and at closing time, or towards evening, allowing the temperature to fall to 65° through the night.

Succession Houses.—The Vines being in full growth, and the weather more or less sunny, fire heat will only be necessary to prevent the temperature falling below 65° at night, though it may recede to 60° on cold nights, and to maintain it at 70° to 75° by day. Admit a little air as soon as the sun acts powerfully on the house, but maintain it at 80° to 85° from sun heat, allowing the temperature to rise to 90° or 95°, closing the house at 85°, then sprinkling the paths and borders. By admitting air early in the morning the moisture condensed on the foliage during the night is dispersed before the sun's rays act powerfully, and thus scorching is obviated.

Watering.—When the known requirements of the Vines or borders are acquired from long experience, stated intervals for watering answer in all but the variable circumstances that upset the calculations. Thorough supplies are usually afforded at starting to insure the moistening of the border materials to the drainage. This is necessary, but it may be overdone, and any approach to soddenness does considerable mischief, as root formation is not favoured by wet, but healthfully moist soil. All that is needed is water sufficient for the solution and diffusion of the stored matter, for rootage in Vines does not precede but follows the breaking of the buds. If a dressing of some approved fertiliser is given at the start it will be in proper condition for absorption by the roots when these push fibres freely, and another before the Vines come into flower will push the Grapes ahead after setting. During the first swelling more need for water arises, as the foliage has a large expansion, and is fully capable of performing its functions. Stimulating food may then be supplied, such as top-dressing of the advertised manures or waterings of them in liquid form. When stoning, phosphates or mineral matter is most needed, afterwards nitrogenous substances favour the increase of the flesh and juices, but when colouring commences phosphates, potash, and reduced amount of nitrate or ammonia are most beneficial. The amount to be given depends upon circumstances, soil, conditions of Vines and crop. Loose and light soils require more manure than compact and strong, weakly Vines more frequent and greater amounts than sturdy and vigorous, heavily cropped than lightly burdened Vines. Likewise in watering the supplies need to be regulated by circumstances, always making weekly examination of the border in the case of light soil, and fortnightly where heavy, and supplying it whenever required, but only then. Over-watering is as bad, or worse, than under-watering, but neither are good, there being more failures from insufficient than over-watering where the borders are properly constructed and the drainage complete. Watering twice a week in the case of Vines with roots in restricted borders, and once a week for those that have a good run of border, is not too much after the Grapes are formed until they are changing colour. Some loams are naturally very loose, sandy, or gravelly, and they have the usual opening materials added, as lime rubbish and charcoal, which makes them still more sieve-like, the consequence is the greater need of moisture. Retentive soils will require water far less frequently, but in no case must there be any lack at the roots throughout the swelling period.

Late Vines.—The latest will be in flower in most places. Maintain a temperature of 70°. Shaking the rods once or twice a day will be sufficient in most cases to distribute the pollen effectively, but in that of the shy-setting varieties artificial fertilisation must be resorted to, going over the bunches carefully with a camel's-hair brush. All large berried, free-setting varieties, such as Gros Colman and Gros Guillaume may be thinned whilst they are in flower, and with those that are liable to have closely set berries it is a good plan to thin before the flowers expand, as a practised eye can tell which buds by their vigour are likely to set, and the removal of the weaker strengthens them wonderfully. Whilst the Vines are in flower do not pinch or stop the laterals, but fairly set remove the needless growths, so as to prevent overcrowding, not allowing more to remain than can have full exposure to light.

Planting Growing Vines.—Those raised from eyes in February or March, and grown in pots or turves, may from now to the early part of June be planted out, watering with tepid water to settle the soil about the roots, mulching the surface with a couple of inches thickness of short rather lumpy manure, and shade from bright sun until they become established.

Figs.—**Early Forced Trees in Pots.**—When the first crop fruits are all gathered remove the loose portions of previous mulchings, and supply well sweetened rich compost, which will induce the formation of

active feeding roots, and assist in the perfecting of the second crop. If the trees have become infested with red spider or scale cleanse them by means of any approved insecticide. Syringe twice a day so as to keep down red spider. Although a second crop is serviceable, a good first supply is much more valuable, therefore be content with a few fruits, or none at all if the trees have been severely taxed by the first crop. Growth after this period will require frequent attention to stopping and training, as the best Figs are always produced on sturdy young shoots fully exposed to light and air.

Planted-out Forced Fig Trees.—The fruits on trees started at the commencement of the year are swelling for ripening, and must have a higher temperature and drier atmosphere, but care must be taken to afford an abundant supply of tepid liquid manure and to syringe the foliage regularly, as any sudden check is against the fruit finishing well; besides, a dry atmosphere induces attacks of red spider. As the fruits ripen it will not be advisable to wet them, nor is it necessary, as atmospheric moisture can be secured by keeping the borders and paths properly damped, and the moisture arising from this can be prevented condensing on the fruit by maintaining a steady circulation of air with moderate fire heat. When grown in a hot dry house the trees soon become infested with red spider and scale, and as a consequence the ripening period is shortened, the trees resting because exhausted, consequently the second crop is puny, rusty, and unsatisfactory; but trees treated liberally, ventilated freely, exposed fully to the sun, and syringed so as to keep them clean bear successional. Planted-out trees succeed best on the extension system, allowing the leading shoots to extend without stopping until they reach the extremity of the trellis, when they are cut away after fruiting to make room for others succeeding them, some fruit being also borne on spurs, which are encouraged where there is room for them, not otherwise. Thus the trees are kept constantly well furnished with bearing wood, always of a character affording the finest fruits. The temperature should be kept at 60° to 65° at night, 70° to 75° by day artificially, and 80° to 85° or 90° from sun heat.

Unheated Fig Houses.—The trees are showing abundance of fruits, and these, with favourable weather and management, afford an acceptable supply of ripe Figs in August and September. If in restricted borders of suitable materials they will require copious supplies of water and due syringing. In cloudy weather an occasional syringing suffices, but in bright effect it every afternoon, and sufficiently early to allow the foliage to become dry before night. Ventilate early, insuring a free circulation of air, for it is important that the leaves be well developed. The temperature may rise to 95° or 100°, but in a close atmosphere the Fig produces nothing but leaves. Train the young shoots a good distance apart, stopping unruly growths, but late stopping is not good, as it results in a number of shoots which may not ripen properly, even when duly thinned, and it is on well matured growths that the Figs are borne. Secure, therefore, firm short-jointed wood, and allow the points to grow up to the glass without touching it, in which position they will form a number of Figs ready for swelling in the spring.

Melons.—In houses, when the fruit is cut from the earliest plants the old stem may be shortened to a strong shoot near its base, removing as much of the old soil as can be picked out from amongst the roots, adding fresh in its place, strong, rather lumpy, and well pressed down, giving a good watering. If a moist atmosphere is maintained and the plants are syringed in the morning at about 4 P.M. they will soon start freely, showing fruit in much less time than by starting afresh. If they have healthy growths they need not be cut down so closely, but laterals taken at suitable distances and the old shortened or cut away, the fresh laterals will show fruit at a few joints of growth. If, however, the plants are affected with canker or from carrying too heavy a first crop, a deficiency of water or attacks of insects, are enfeebled, it is better to remove them, thoroughly cleansing the house, placing strong plants in ridges or hillocks of fresh soil. Maintain 70° as the minimum temperature, though 55° or even 60° will do no harm when the nights are unusually cold and the days bright, 70° to 75° being secured by day artificially, admitting air at the latter and increasing it with the sun heat, allowing an advance to 85° or 90°, closing at 80° to 85°, yet so early as to raise the temperature to 90°, 95°, or 100°. Keep abundance of moisture in houses containing young growing plants or those swelling their fruits, gently damping the foliage, walls, and floors, closing about 3.30 P.M., or as early as is safe. Feed plants liberally that have their fruits swelling, not allowing them to suffer through insufficient supplies of water, and afford weak liquid manure. Fertilise all pistillate flowers daily, ensuring a somewhat dry condition of the atmosphere, not using the knife during that period, but pinch out the points of the shoots at one or two joints beyond the fruit. Earth plants that have set their fruits, and examine them frequently for the removal of superfluous growths, not allowing these to interfere with the principal foliage. Shade as little as possible, and only to prevent flagging.

TRADE CATALOGUES RECEIVED.

C. Cox, Western Road, Tunbridge Wells.—*List of Summer Houses and Other Things.*

Wm. Cutbush & Sons, Highgate, London.—*List of New Strawberries.*

Andrew Potter, Melbourne Works, Wolverhampton.—*List of Garden Hose, Netting, Tents, and Other Requisites.*

J. Shores, Owston Ferry, Rotherham.—*Potato Sorter and Other Appliances.*

D. S. Thomson & Sons, The Nurseries, Wimbledon.—*Bedding and Border Plants.*

THE BEE-KEEPER.

APIARIAN NOTES.

STRONG SWARMS.

I NEVER heard of any bee-keeper finding fault with large swarms of bees, but, on the contrary, speaking always in favour of them. Yet many persons do not even give hives a chance to throw off large swarms by keeping bees much too small for their requirements. Large hives very often swarm as early as undersized ones, and as a matter of sequence are more able to gather greater quantities of honey than smaller ones.

Admitting that small hives may swarm a few days earlier than full-sized ones, the former may have from 1000 to 1500 hatching daily, while the latter will have from 3000 to 4000 daily. At a week later it will have 20,000 more than the small hive to go with the swarm, and as many more which constituted the hive before swarming; while the old stock and after swarms are proportionately larger, and consequently in a good season more profitable.

It is entirely owing to bringing up my hives to full strength, regardless of the fate of queens, that I have secured the big yields of honey I have from time to time recorded, and that, too, at times when undersized hives' yield were nil. It is an easy matter for those who have not given the different methods a fair trial to do so the coming season, but to bear in mind the queens must be those of the year previous. It is no use working with queens two years old; they may be fair, but not (unless in exceptional cases) good, at least I have never found them so.

PUNIC *versus* BRITISH BEES.

For reasons previously explained, my apiary in the future shall be stocked with Carniolan bees only. Pushing forward that state of matters I gave away many of my Punic queens with bees during the autumn of 1894.

There is perhaps not much in that to the casual observer, but the trait came in well when a lecturer appointed by the County Council lately advised bee-keepers to keep the old British bees, as "they were the best." One auditor supported him in this theory, because his British bees were doing by far the best. He was rather surprised and taken aback when I informed him the bees he was boasting of were not British but Punic, North African bees, and those I gave him in the autumn. These facts apply, in my opinion, to all who say they have the British bees, and to every place in the United Kingdom.

WIND AND WATERPROOF COVERS FOR HIVES.

An effective wind and waterproof roof for hives not provided with these may be made with two slates and a piece of zinc ridging. The zinc is bolted to the slates, which ought to be large enough to give proper protection, and the zinc while holding both together affords ventilation at the apex. The weight of the slates is sufficient to resist a very high wind, and may be said to be everlasting. Some made thirty years ago are as good as ever they were.—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES.

If not already done, arrangements should at once be made for obtaining full benefit from the honey flow when it comes. A careful examination must be made of all stocks, and a note made of those that are intended for working sections of comb honey, and those that are required for extracting purposes, as it is much the best plan to work them separately. I never extract honey from the brood comb, and strongly advise others to follow the precedent.

As it is not advisable to place all your eggs in one basket, it is better to work for both comb and extracted honey than to produce it only in one form. In some districts there is a great demand for well finished sections. In others honey in the comb is a drug and almost unsaleable. Extracted honey is often more useful for domestic purposes, consequently a more ready sale is obtained if neatly bottled in 1 lb. glass jars, which may be made attractive by using the producer's own label. A greater weight of honey per hive can be obtained by extracting than is usually had by working sections, but as the latter is of more value per pound the result is much the same. The reason sections take longer to finish is that every cell must be sealed over or they will drip. This is the objection that dealers have in handling sections, whereas the combs that are extracted from are taken from the hive when partly sealed over; the honey is ripe, and a day or two is saved, which is a great consideration in a season like last year, when the honey flow only lasted about a week. The 1 lb. section I consider

preferable to any other. A few years ago sections to hold 2 lbs. of honey were often used, but latterly the smaller size has been in most request.

The one-piece section with the four bee way is to be preferred, as it is a very easy and quick process to prepare a quantity for use. Commence by folding them into shape, and as the ends are dovetailed a slight tap with the hammer will make them secure. If the wood is very dry they will sometimes break at the corners during the folding process, but if slightly damped there will be no danger from this cause. Some bee-keepers prefer to use whole sheets of foundation for sections, but except for exhibiting purposes this is quite unnecessary. All that is needed is to fix a strip of foundation to the top of the section to act as guide comb for the bees to work from, as the midrib of comb is always less where the bees make it themselves than when foundation is used.

If the sections are prepared and placed in crates ready for use when required, it will be an advantage and a saving of much valuable time, as with favourable weather strong stocks in forward districts should soon be ready for supering. At the present time it may appear rather premature to speak of supering bees, with the wind blowing a gale from the north-east, doing much damage to the fruit trees that are in full bloom, and the temperature only a few degrees above freezing. Should the threatened frost come it will do a great amount of damage, as all vegetation made rapid growth during the spell of hot weather recently experienced.

Verily, bee-keepers, as well as gardeners, require a great amount of patience and forethought. Even then their best laid schemes may be dashed to the ground in a single night. But let not bee-keepers forget the busy workers who are short of stores; they can at any rate make them secure by covering them and giving a little thin syrup whilst this spell of bad weather lasts.—AN ENGLISH BEE-KEEPER.



* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Propagating Her Majesty Pink (*Sussæ*).—You can pull off the pipings and insert them singly in thumb pots in sandy soil, and place them in a hand-light or under a bell-glass outside. The most certain way is to turn the plant out of its pot and plant it outside, then layer the growths the same as you would Carnations. A quicker way is to insert the plant in a cool frame, and then layer the growths in it, lifting and potting singly, or planting out when rooted.

Rooting Tree Carnations (*Haywards Heath*).—It is immaterial whether the cuttings are cut just below a joint or whether they are split. Some follow one practice and some another. Very much depends on the cuttings; if short and somewhat soft they are best cut below a joint, if fairly firm it does not matter. The principal thing is to insert them in sandy soil and keep them practically air-tight until they are rooted. Water when inserted in sandy soil, and shade from bright sunshine.

Peach Tree Growths Blistered (*Somerset*).—The shoots and leaves are badly diseased, being what is known as "blister." It is caused by a fungus (*Saphrina* or *Exoascus deformans*), the leaves ultimately withering and falling. The recent cold weather has been singularly favourable to the development of the fungus, it not being possible for it to exist under certain atmospheric conditions; hence it is culturally avoidable by means of a glass coping and protective material in front, such as scrim canvas or wool netting, being so contrived as to be let down or drawn up as required on the appearance and departure of frost. This would be the best thing, and should be provided ready for another year, and then you may defy the fungus. This year you may remove the worst infested leaves and the young shoots, but not defoliating the trees too much at once, yet gradually, so as to remove every part of the diseased leaves and shoots, and when fine weather comes the young growths will not be affected. As the saying is, the trees will grow

out of the disease; the reason is the conditions under which the fungus cannot thrive are produced naturally, or artificially by protection from cold winds and frost.

Aleppo Pine (Somerset).—This is, no doubt, the species to which you refer. Its botanical name is *Pinus halapensis*. It is of very wide distribution, being found in the Mediterranean region from Portugal to the Levant, throughout Western Asia, on Mount Hebron in Palestine, and other parts of Syria. Sow the seeds in sandy soil containing a good amount of vegetable matter in a cold frame, shading for keeping the soil uniformly moist until germination is effected, then admit light with free ventilation preparatory to full exposure of the plants.

Bossiaea tenuicaulis (Young Gardener).—Several *Bossiaea*s are in cultivation, but they are comparatively rarely seen except in large collections of plants. Yet they are well entitled to a foremost position among the best of the Australian Leguminous plants, as they are mostly free in growth and astonishingly profuse flowerers. Two of the most handsome and useful are *B. linophylla* and *B. tenuicaulis*, the latter being represented in the illustration (fig. 81). *B. linophylla* is a slender shrub with linear leaves and bright yellow flowers, which are produced from



FIG. 81.—BOSSIAEA TENUICAULIS.

May to September. *B. tenuicaulis* is rather more straggling in habit, with ovate leaves, the flowers being rich yellow streaked with red. It also flowers earlier than the other—usually during April and May. Both these, like all the others, thrive in a greenhouse temperature, a compost of peat and turfy loam and sand, with good drainage, being all the attention needed.

Black Stripe on Tomatoes (St. Julien Arabin).—Your letter describing the progress of the disease is extremely interesting and valuable as showing under what conditions the fungus (*Macrosporium tomati*) thrives best, and what are inimical to it. You are quite right; you began too late. Steps ought to be taken with the seed, not using any but from perfectly healthy plants, disinfecting all before sowing, then practising spraying with Bordeaux mixture before the plants come into flower, and at fortnightly or three weeks intervals afterwards. Mulching with strawy matter must be avoided, and heavy dressings of stable manure should not be applied to the soil. If you do not like Bordeaux mixture use the lime and carbonate of copper mixture, or you may employ anti-blight powder or McDougall's patent anti-mildew or fungus powder, the thing being to begin in time and follow it up. The disease usually first becomes noticeable when the fruit is about half grown, appearing at the blossom end, but often at the stem end, as a small blackish spot or streak, that increases in size as the Tomato develops. The tissues beneath the spot are destroyed by the fungus, so that the fruit becomes flattened where affected, and the inside of the Tomato is blackened. The fungus also appears on the stem, but mostly

on the fruit, usually involving the whole fruit and plant (more or less), producing a shrivelling and blackening, which, as you say, is appalling. See page 457.

Packing Forced Strawberries (A. S.).—There are a variety of methods of packing Strawberries for market. Some salesmen prefer them packed in round and square punnets; others in boxes that will hold about 1 lb. We generally pack in boxes of various sizes. Some are 18 inches in length, 1 foot wide, and 2 inches deep; others 12 by 12 by 2; others 2 inches narrower; others 10 by 10 by 2; others 10 by 8 by 2; and others 1 inch narrower. We place at the base of the box a layer of cotton wool, or very fine willow shavings, the thickness varying according to the size of the fruit. Over this a sheet of tissue paper, then a layer of Vine leaves or Spinach, or failing these each fruit in a Strawberry leaf on the tissue paper. Lime leaves are capital at this time of the year, so are the soft leaves of Spinach; over the top a good layer of leaves, and then the lid. The box must be full.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (W. C. B.).—*Bryophyllum calycinum*. (R. J.).—1, *Spiraea prunifolia* flore-pleno; 2, *Doronicum caucasicum*; 3, *Myosotis dissitiflora*. (Obeido).—The *Spiraea* is a variegated form of *S. japonica*; the other specimen is *Cyrtodeira rosea*, if it has rose-coloured flowers. (O. E.).—1, *Ornithogalum longibracteatum*; 2, *Salix lanata*; 3, *Ame-lanchier Botryapium*. (F. G. S.).—*Solanum Seaforthianum*. (P. W.).—1, *Thunia alba*; 2, *Odontoglossum citrosimum*; 3, a poor form of *Cattleya Mendeli*; 4, *Oncidium macranthum*. (G. I.).—1, *Dendrobium thyrsiflorum*; 2, *Cattleya Mossiae*, good variety; 3, *Odontoglossum Pescatorei*. (F. P. V.).—1, *Iberis sempervirens*; 2, *Cheiranthus alpinus*; 3, *Kerria japonica* flore-pleno; 4, *Stachys lanata*; 5, *Corydalis lutea*; 6, *Doronicum austriacum*. (M. T. D.).—*Statice profusa*. (H. M. H.).—The specimens you send are seedling variations from the common Holly, *Ilex aquifolium*. (J. M.).—1, *Lycium europæum*; 2, *Veronica gentianoides*; 3, *Anemone sylvestris*; 4, *Tiarella cordifolia*; 5, not in flower, perhaps *Heuchera sanguinea*. (J. Harris).—The specimens you send are florists' varieties, not species of plants—see above.

COVENT GARDEN MARKET.—MAY 22ND.

TRADE steady, with full supplies.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.	
Apples, Nova Scotia, per barrel.. ..	10	0	to	21	0	Cobs per 100 lbs.	10	0	to 0	0
„ Tasmanian, per case	5	0	8	6	Grapes, per lb.	1	6	4	0	
Asparagus, English, per bundle	1	0	3	0	Lemons, case	10	0	15	0	
					Peaches, per dozen	6	0	24	0	
					St. Michael Pines, each	2	0	6	0	
					Strawberries, per lb.	1	0	4	0	

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb. ..	1	0	to	0	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	0	Onions, bushel	3	6	4	0	
Carrots, bunch	0	3	0	4		Parsley, dozen bunches ..	2	0	3	0	
Cauliflowers, dozen	3	0	6	0		Parsnips, dozen	1	0	0	6	
Celery, bundle	1	0	1	3		Potatoes, per cwt.	2	0	4	0	
Coleworts, dozen bunches	2	0	4	0		Salsify, bundle	1	0	1	6	
Cucumbers, dozen	1	6	3	6		Seakale, per basket	0	0	0	0	
Endive, dozen	1	3	1	6		Scorzonera, bundle	1	6	0	0	
Herbs, bunch	0	3	0	0		Shallots, per lb.	0	3	0	0	
Leeks, bunch	0	2	0	0		Spinach, bushel	1	0	1	6	
Lettuce, dozen	0	9	1	6		Tomatoes, per lb.	0	6	1	0	
Mushrooms, punnet	0	9	1	0		Turnips, bunch	0	3	0	6	

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.—Orchid Blooms in variety.

	s	d	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	2	0	to	4	0	Pelargoniums, 12 bunches	6	0	to	9	0
Azalea, dozen sprays ..	0	6	1	0	Primula (double), doz. spys.	0	6	1	0		
Asparagus Fern, per bunch	2	0	3	0	Roses (indoor), dozen ..	0	6	1	0		
Bouvardias, bunch	0	6	1	0	„ Tea, white, dozen ..	1	6	2	6		
Carnations, 12 blooms ..	2	0	6	0	„ Yellow, dozen (Niels)	3	0	6	0		
Eucharis, dozen	4	0	6	0	„ Safrano (English),						
Gardenias, dozen	3	0	4	0	dozen	1	0	2	0		
Geranium, scarlet, doz.					„ Yellow, dozen blooms	1	6	2	0		
bunches	4	0	6	0	„ Red, dozen blooms ..	2	0	4	0		
Lilac (English) per bunch	0	4	0	9	Smilax, per bunch	4	0	6	0		
„ (French) per bunch	3	6	4	6	Spiraea, dozen bunches ..	4	0	6	0		
Lilium longiflorum, dozen	3	0	4	0	Stephanotis, dozen sprays	3	0	4	0		
Marguerites, 12 bunches ..	1	6	3	0	Tuberose, 12 blooms ..	0	4	0	6		
Maidenhair Fern, dozen					Violets (English), dozen						
bunches	6	0	8	0	bunches	1	0	2	0		
Orchids, dozen blooms ..	1	6	12	0	Violets (French), bunches	1	0	2	0		

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Foliage plants, var., each	2	0	to	10	0
Aspidistra, dozen	18	0	36	0	Genistas, per dozen	8	0	10	0		
Aspidistra, specimen plant	5	0	10	6	Geraniums, Ivy, per dozen	4	0	8	0		
Azaleas, each	3	0	4	0	Heliotrope, per dozen ..	6	0	8	0		
Calceolaria, per doz. ..	6	0	9	0	Lobelia, per dozen	4	0	6	0		
Cinerarias, per doz. ..	8	0	10	0	Lycopodiums, dozen	3	0	4	0		
Coleus, per doz.	6	0	9	0	Marguerite Daisy, dozen	8	0	10	0		
Cyclamen, dozen	9	0	12	0	Myrtles, dozen	6	0	9	0		
Dracæna, various, dozen ..	12	0	30	0	Palms, in var., each	1	0	15	0		
Dracæna viridis, dozen ..	9	0	18	0	„ (specimens)	21	0	63	0		
Erica, various, dozen ..	9	0	18	0	Pelargoniums, per dozen ..	9	0	15	0		
Euonymus, var., dozen ..	6	0	18	0	„ scarlets, per						
Evergreens, in var., dozen	6	0	24	0	dozen	3	0	6	0		
Ferns, in variety, dozen ..	4	0	18	0	Rhodanthe, per dozen ..	4	0	6	0		
Ferns (small) per hundred	4	0	6	0	Roses, per dozen	8	0	24	0		
Ficus elastica, each	1	0	7	0	Spiræa, per dozen	6	0	12	0		



THE MANAGEMENT OF YOUNG STOCK.

LAMB weaning is a reminder to us of the special care required in the treatment of young stock, and of the frequent applications which we have for help in this matter. For the lambs when weaned tempting food, and abundance of it, at some part of the farm where they cannot hear the bleating of the ewes, is the best thing. In most springs they run forward on the Swedes, clearing off the green tops, and making no inconsiderable mark on the roots, also long before weaning time. This year Swedes left out in the open were very generally destroyed by the great frost. Some good work was done in folding the ewes and lambs first of all on Swedes from covered heaps, and then on Rye, some crushed Oats being used in the feeding troughs for the ewes, and some mixed corn crushed for the lambs.

It is customary on some farms to separate all small or weak lambs from the others, and to sell them. We do not do so, but prefer leaving the whole of them together for the present, and to keep all of them going briskly by folding on Sainfoin or Tares, and still giving a little corn in troughs. In due course we shall select a certain number of the best ewe lambs to add to the breeding flock; all strong wether lambs will be reserved for autumn and winter folding, and the smaller lambs will be sold. We are convinced that early maturity is a golden maxim in flock management, pointing literally to golden profits.

Calves have to rough it, and suffer more from exposure and a low diet than any other stock of the ordinary farmer. To keep them healthy, well nourished, and going briskly they require perfect shelter and a perfect dietary, altogether different to that which they generally have. At the present time there are numbers of calves to be seen out on pastures, taking their chance with older stock, or if kept separated they receive no special care other than some gruel twice daily. It may seem and is right enough to see them now out on the fresh succulent herbage by day, but at night cold wind and cold showers prove very trying for them. It is altogether better to shut them in a snug yard or hovel at night, and so to avoid any risk of exposure to cold and wet. Every home farm should have one or more calf hovels, each having its separate yard and paddock.

Corrugated iron sheeting answers admirably for sides and roof of the hovel and for sides of the yard. It is cheap, durable, and affords perfect shelter, and the calves are then kept thoroughly in hand, nothing being left to chance. If they still have milk it is thickened with oatmeal; if it is separated milk, some boiled linseed may be used to replace the missing fat, but we find a liberal mixture of oatmeal and crushed Oats answers well, and always avoid cake or linseed bills if we can. No animals repay one better for careful tending, for good food, shelter, and kindly treatment than calves, and yet there are none among which losses are heavier from negligence and mismanagement.

Young pigs may be helped early by having a slip board in the side or front of the enclosure in which they are kept with the sow, so that as soon as they begin feeding they may have access to some milk thickened with oatmeal or barley-meal. If kept going with this milk and meal after weaning they are soon out of hand, 1 lb. of meat for 5 lbs. of meal being the usual result. Breed well, feed well, and shelter well tells

with porkers to a certain profit, either at 60 lbs. or twice that weight. Our experience is decidedly in favour of the lesser weight provided the porkers are really first-class. Dealers are then eager enough to have them; it is the second and third-rate animals which they dislike, and which pull down market returns. Keep them on a clean dry floor or one well littered with dry litter. They often suffer from cramp, caused by having to lie down on a damp floor. Dairy farmers having to buy all their straw and litter are very guilty in this matter, and suffer from losses accordingly. Cold and wet are the two things to avoid, and when young animals are shut in let it not be forgotten that they require a dry floor as well as a dry roof.

WORK ON THE HOME FARM.

Wonderful was the heat and brisk the growth of everything till the 14th, when the weather became somewhat colder. Rye rushed up into ear in southern counties, where it was being mown for green fodder. Never have we found this crop more useful both for mowing and sheep folding. The dry weather has been highly favourable for keeping down weeds among crops and for clearing land, but it has rendered root-sowing somewhat difficult. As ploughing of late-folded land has been done harrows and drills have followed closely, and where land has been thrown up in ridges seed-sowing has been done and the rollers passed over before the soil became too dry for the work. On fruit farms horse and hand hoes have been kept going briskly. The land is clean, and from Strawberry fields to orchard trees the abundant blossom gives promise of an abundance of fruit. Caterpillars are rampant on the trees, and sprayers are already in full action.

As the ewes are separated from the lambs for the weaning they are turned on some rather poor upland pasture for awhile, and then all over-age ewes, and those with faults or blemishes rendering them unfit for breeding again, are separated from the flocks, and they will go into folds on pasture early in the autumn, to be brought into saleable condition, and at the same time to do some good to the land. It is quite useless folding such old sheep on roots to pull out their teeth on food which they cannot consume. Much better is it to reserve the roots for the hoggets. See that the sound ewes, or rather the breeding flock, has all due care bestowed on it now and onwards through the summer. After the shearing has been over sufficiently long for any wounds inflicted by the shears to heal, and after, not before the weaning, let the ewes be dipped in Cooper's dressing to destroy ticks and other parasites, and then let them have really good grazing for the three or four months intervening before attention must again be given to breeding matters. All such matters of detail depend as to time and locality, there being a difference of months between flock work on arable and dairy farms, and between north and south.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet

DATE.		9 A.M.				IN THE DAY.				Rain.	
1895.	May.	Barometer at 32°, and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	12	30.244	68.5	57.0	S.E.	56.2	80.4	49.1	115.9	44.2	0.031
Monday ..	13	30.310	65.9	60.0	N.W.	57.1	79.4	57.2	121.9	53.2	—
Tuesday ..	14	30.302	64.7	57.9	N.	58.6	75.3	54.9	122.1	49.2	—
Wednesday ..	15	30.335	58.1	52.0	N.W.	59.1	63.4	55.1	104.7	51.8	—
Thursday ..	16	29.858	49.1	40.7	N.	57.9	53.9	44.1	104.9	38.6	—
Friday ..	17	29.729	43.4	37.7	N.W.	55.4	50.1	39.1	77.1	34.6	0.119
Saturday ..	18	29.597	48.9	46.3	N.E.	53.7	56.3	40.9	101.8	39.9	—
		30.011	51.9	50.2		56.9	65.5	48.6	106.9	44.5	0.150

REMARKS.

- 12th.—Hazy, close, and frequently cloudy day, threatening in afternoon, and a slight shower between 4 P.M. and 5 P.M.
 13th.—Hazy and cloudy early, generally sunny during the day, but cloudy at times and rather close.
 14th.—Warm, and a little hazy, alternate sunshine and cloud.
 15th.—Generally cloudy till noon; sunny afternoon.
 16th.—High wind and alternate cloud and sunshine.
 17th.—Overcast almost throughout and chilly, spots of rain in evening and showers at night.
 18th.—Rain from 1 A.M. to 5.30 A.M., overcast; with occasional spots of rain till noon, occasional gleams of sun after.

More than 3.° between the maximum in the shade on the 12th and on the 17th. Monday, 13th, was warmer than an average July day, and May 17th had about the temperature usual at the end of March. This cold spell in May is an almost invariable occurrence, and generally occurs in the second or third week. Happily this year the nights have generally been cloudy, and so we have not yet had actual frost.—G. J. SYMONS.

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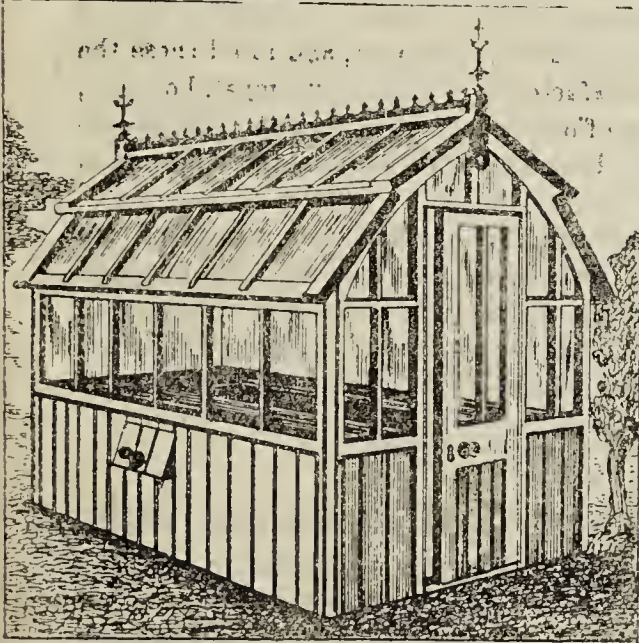
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Journal of Horticulture.

THURSDAY, MAY 30, 1895.

HARDY FLOWER NOTES.

SO fair and beautiful are the hardy flowers in the bright days of early summer that it is a constant delight to be among them. Long as we waited for winter to depart we have since been recompensed with no churlish hand, and since early in May the attractions of the garden have been almost bewildering.

Tulips, which seem to have stolen from the most radiant sunsets their brilliant hues, up-reared themselves above the galaxy of gems with which they were surrounded. Alpine Phloxes have been mounds of bloom from white through lilac and blush and pink to the bright red-purple of one of the hardiest of all—*P. setacea atro-purpurea*. The great clumps of *Alyssum saxatile compactum* which, when winter was but passing away, seemed forlorn and holding forth little hope of beauty, blossomed forth into masses of purest gold. White Saxifrages and purple Aubrietias have allied themselves together and combined to take our hearts by storm. Violets and the more brilliant Violas nestled here and there among other flowers in the borders or stood boldly out from more conspicuous places on the rockwork.

Specially noteworthy among these have been Violas William Niel and that sweet and refined flower *Pride of Etal*. Primulas and Auriculas, too, have made charming pictures; the varieties of *P. Sieboldi*, of which I have now some good clumps, having been specially favoured with calm weather to enable them to yield us longer pleasure by their elegance. A few of the best Alpine Auriculas, the gift of an old florist whose acquaintance I have the honour of having, have been very charming; although grown in a border and not cultivated in a frame in the orthodox manner. These are flowers to study and not to glance at; refined creations of the taste and skill of men who have done much to advance the noble and gentle art of gardening. But besides these flowers, which from their numbers attracted a greater share of attention, there have been many others which in the eyes of the true lover of flowers have been no less delightful, and one would like for once to cast aside all considerations of space and utility and roam from flower to flower, saying a little about

each as we roamed, and telling something of its beauty and its wants and ways. Yet this cannot be done; and as one has so often to do in this world of ours, we must check our inclinations and limit ourselves to speaking of a few.

The Tulip, "the fop of the parterre," as the poet unworthily dubs it, must as usual at this season come in for more particular remark, not, however, to trespass on the domains of those versed in the English varieties nor even to detail the beauties of the brilliant early and late forms which are so decorative in almost every garden, but to speak as usual of some of the less known species or varieties.

One of those which has attracted considerable notice here bears the name of *T. Kolpakowskiana*, and, like *T. Kaufmanniana*, comes from Central Asia. It is to be feared that its name is neither euphonious enough nor brief enough to commend this Tulip, which must thus stand or fall on its own merits, and it is likely enough that these are great enough to enable it to make its way into our affections—and our gardens. In its early stages of growth a feeling of disappointment is almost inevitable. The plant is "lanky," and after the flower-stem attains some length it bows down towards Mother Earth like some other Tulips but in a more pronounced way. While at this stage it is a somewhat odd looking object, and when it becomes erect and the flowers begin to open one's admiration is but faint. In a few days, however, its beauty is better recognised and we can admire its bright flowers with their acutely pointed segments. The flowers are a good size, and vary in colour from scarlet to yellow, the red form being almost self-coloured. It grows nearly 2 feet high, and the flowers on their long stems seem to follow the course of the sun. It came into flower with me in April and lasted for some time in bloom.

Another Tulip which has been longer in my garden and which I originally received from Bithynia is *T. Biebersteiniana*, which, as has been well said, resembles *T. sylvestris*, but is smaller and less robust in habit. It is bright yellow inside, the outside being duller in colour, and opens out flat in the sun, when open looking rather like a tall *T. persica*, although hardly so attractive as that graceful little species. *T. Biebersteiniana* does not appear to open much before one o'clock, even in full sun. I have watched it for several days together, and this has been about the time at which the flowers expanded. It grows to nearly 1 foot in height, and seems to be suited for a permanent place in the border or rockery.

A few notes on such pretty Tulips as *Buonoventura*, *Picotee*, *Gesneriana alba marginata*, *Golden Beauty*, and others must be deferred until another time.

A rather attractive looking plant on one of the rockeries has been *Vesicaria utriculata*, one of the "Bladder Pods" or "Bladder Seeds." This is a perennial which grows about 1 foot high, and has racemes of bright yellow Wallflower-like flowers. It is rather a pretty plant, and when the flowers are over the inflated seed pods are interesting. The leaves are smooth and bright green, the lower ones being somewhat ciliated. *V. utriculata* may be increased by seeds or division, and will grow in ordinary soil in the border. It seems, however, to be more attractive on the rockery than in the border. Although introduced from the South of Europe as long ago as 1730 it is but seldom seen, and is worthy of a little more attention than it has hitherto received from those who care for hardy plants. *V. græca*, another species, is occasionally met with as *Alyssum utriculatum*, and is thus liable to be confused with the one under notice. *V. arctica*, a North American species, I have not yet had the pleasure of seeing.

Several visitors to my garden have lately been much attracted by a little *Fritillaria*, of which our generous friend Mr. Edward Whittall of Smyrna kindly sent me a number of bulbs. Few of the *Fritillaries* are showy plants, but many of us confess to some admiration of them, and look on them in much the same light as Mr. Benson seems to do in his poem, "*Fritillaries*." They are, in truth, "rare outlandish things for such as love them," but mostly having the fault that the prettiest markings are inside, and that

the flower has to be turned up to see these. The species I am now speaking of is not, however, "spotted like an ocelot's skin," nor even "streaked like the banded viper," to quote Mr. Benson again but is of almost a sea green outside and a peculiar greenish yellow inside. The flower is more cone-shaped than most of the *Fritillaries*, and its colouring makes one almost wonder wherein its attractions lie. Still attractions it has, and ladies seem to admire it, which is surely a sufficient answer to any expressions of disapproval. I suppose the name of *citrina* has been given to this Snakeshead Lily on account of the interior colouring, although it is hardly of the shade that one usually associates with the word. *F. citrina* cannot thus be said to be attractive to the multitude, and yet it is but faint praise to say that it is more pleasing than a considerable number of the plants of the singular genus to which it belongs. I do not know how widely *F. citrina* is distributed, as no mention of it appears in my works of reference. Some bulbs of this species collected in Samos came in 1893, but like many other *Fritillaries* this season these established bulbs did not flower, and those which flowered were sent me in 1894. Several of my friends with whom I have correspondence have a similar experience in the way of disappointment with the non-flowering of many of the Snake's-head Lilies this year. I understand Mr. J. G. Baker is the authority for the specific name of *F. citrina*.

The many persons who have been experimenting with the *Oncocyclus* Irises may be interested to learn the result of another season's trial of these singularly beautiful flowers. It is, I am sorry to say, an unsatisfactory report that I have to submit, as the only one likely to flower is *I. lupina*, which flowered here last year, and is now open. This seems a more robust and satisfactory grower than the majority in my garden. Of the others *I. lupcens*, *I. paravar*, *I. Gatesi*, and *I. Helenæ* seem the best growers, the first two being hybrids, raised by Professor Michael Foster. *I. atropurpurea* and some others seem to be going back instead of gaining in strength. After the flowering season they were kept quite dry until October, when the lights, which had been placed over them, were removed.

During the severe frost they were covered with litter, which was removed when the frost had quite gone. I have seen several Irises of this section in other gardens this year, and in all these the results are decidedly unsatisfactory. I suppose we must, however, brace ourselves for a fresh effort in hope of being able to overcome the mysteries which baffle those who wish to grow these flowers in our northern lands.

I had intended to say something about the results of my experimental planting of *Calochorti*, but this must be deferred from considerations of space. Some are in flower and others are in bud, so that soon several of these attractive *Mariposa* Lilies will add to the pleasures the garden yields.—S. ARNOTT, *Dumfries*.

FOOD REQUIREMENTS OF THE GRAPE VINE.

MUCH has recently been written in the *Journal of Horticulture* on "Grape Growing," but so far nothing has been said about the food requirements of the Vines, and the best manures to apply to suit their wants. Being a good time of the year to apply top-dressings, either of natural or chemical manures, to Vine borders, it would be advisable to see which are the best substances to use for this purpose, for many Vines are partly ruined through heavy cropping, and being insufficiently supplied with the necessary ingredients to finish the crop, and to produce suitable wood for fruiting the following year.

It has been shown in the *Journal of Horticulture* ("Plant-forming Elements") that certain elements are essential for the growth of plants. Which of these are needed most by the Vine? This can only be shown by an analysis of the Vine and its fruit. One ton of Grapes will yield on burning 18 lbs. of mineral matter or ash, which show the following selected constituents:—Potash 60 per cent., phosphoric acid 16 per cent., lime 15 per cent., magnesia 5 per cent. The manurial requirement of the Vine to produce 1 ton of Grapes is potash, equal to 19 lbs. of sulphate of potash; phosphoric acid, equal to 10 lbs. of mineral superphos-

phate; lime, equal to 5 lbs. of carbonate of lime; and magnesia, equal to 3½ lbs. of sulphate of magnesia. The nitrogen contained in 1 ton of Grapes is 8½ lbs., equal to 54 lbs. of nitrate of soda.

The wood on the Vines sufficient for the production of one ton of Grapes (I am speaking of laterals only) would weigh about 200 lbs., and requires for its formation nitrogen equal to 8 lbs. of nitrate of soda, potash equal to 2 lbs. of sulphate of potash, and phosphoric acid equal to 1 lb. of mineral superphosphate. The leaves when weighed would be about 130 lbs., and would require nitrogen equal to 3 lbs. of nitrate of soda, potash equal to 1 lb. of sulphate of potash, and phosphoric acid equal to 1 lb. of mineral superphosphate.

To produce a ton of Grapes in theory would require 65 lbs. of nitrate of soda, 22 lbs. of sulphate of potash, and 12 lbs. of mineral superphosphate; but from a practical point of view much more would be required. It has been shown by experiments that never more than 60 per cent. of the manure applied becomes available for the crop. The compound which ought to be in excess of the actual requirements of the Vine is the phosphoric acid, for it combines readily with some of the compounds of the soil to form insoluble phosphates, which are of very little value as plant food.

Farmyard manure is not suitable as a top-dressing for Vine borders, the amount needed to supply the necessary quantity of food being so great as to make its use impractical where large numbers of Vines are grown, for 1 ton of the best farmyard manure only contains about 12 lbs. of nitrogen, 12 lbs. of potash, and 6 lbs. of phosphoric acid, and this would only become available for the plant by the slow decay of the manure.

Undoubtedly the best results are obtained at the present time by the judicious use of suitable chemical manures, for they are concentrated, easy to apply, and can be given in a soluble form, which is very essential when we know that nearly the whole of the food constituents of the Vine is taken from the soil before the berries begin to colour. The manures I mentioned were only to show the requirements of the Vine, and may be substituted by others for some soils with advantage. For sandy soils kainit could take the place of the sulphate of potash, 100 lbs. being used to supply the necessary amount of potash, for it is an advantage to use this manure on sandy soils, because of the property it has of absorbing moisture; it would be better to use half the amount of nitrate of soda and substitute for the other half dried blood. On stiff clayey loams 42 lbs. of sulphate of ammonia could be used with advantage instead of the nitrate of soda.

It should be remembered that for the successful use of a chemical manure the Vine border must be in a good condition, that if the soil be of a sandy character it will not retain plant food like a clayey soil, consequently will require more frequent dressing of manures, and that it is always better to apply them in small dressings and often rather than in large quantities at any one time.

Perhaps a few remarks on the amount of chemical manure to use, and the best time to apply it, may be of use to many. If the soil be of a sandy character, poor in organic matter, manures like guano and kainit (2 lbs. of the former to 3 lbs. of the latter) will have the best effect. The guano will supply the nitrogen and phosphoric acid, and the kainit the potash. On sandy soils rich in organic matter the following will be a good mixture:—1 lb. of nitrate of soda, 2 lbs. of superphosphate, and 3 lbs. of kainit. The nitrate of soda to supply the nitrogen, superphosphate the phosphoric acid, and kainit the potash. The amount to use in both cases is 1½ oz. to the square yard, every week from the formation of the shoots to the colouring of the berries, when all feedings should cease.

On loamy or clayey soils the following will be found a more suitable mixture:—2 lbs. sulphate of ammonia, 6 lbs. superphosphate, and 1 lb. sulphate of potash, to be applied at the rate of 2 ozs. every fortnight during the period of growth above mentioned.—W. DYKE.

CROWDING, THINNING, AND ASSISTING CROPS.

WE are always more or less at the mercy of the weather, and so are all who practise horticulture in any part of the world, but all the same those persons succeed the best who adopt the best methods. Take the case of Potatoes. Plenty of the men know they are acting foolishly in crowding the plants in the way they do, and they are also aware that miserable little sets are a mistake.

Very rarely, if ever, are really heavy crops obtained from crowded rows, and if the shoots come up thickly I should advise an early drawing of some of these weakly growths. The heaviest crops are invariably had from extra strong branching haulm, only one or two stems springing from each strong set planted. It is at the ends of the rows where the best crops are usually found. A loose, deep root run is most favourable to the production of

Potatoes, and if the ground was lumpy when the planting was done extra pains should be taken in fining it down afterwards. Canterbury, or two-tined hoes, are excellent for this purpose. This hoeing checks the growth of weeds, breaks up the clods, and lets in the warmth and air, and those who take this extra trouble may reasonably expect better crops than those who do not. A dressing of soot applied before the first hoeing would not be wasted, but a very light surfacing of nitrate of soda would be even more effective on medium and light soils.

Will the bouillie Bordelaise, or preparation of sulphate of copper and lime, ever become popular as a dressing to prevent the Potato disease? I think not. There is too much ceremony and bother in the preparation; yet the Warminster experiments, which cost but 12s. per acre and gave an increased yield of from 3 tons to 5 tons per acre, must be considered most satisfactory. For smaller plots Mr. Robert Fenn's remedy, a powder known as anti-blight, is much to be preferred. Mr. Fenn distributes this over the haulm as often as needs be by means of a hair sieve. I shall use it extensively, and the Malbec bellows will be the means of distribution. Lime alone seems fairly efficacious against Potato and kindred diseases, but two parts of this to one of sulphate of copper in a powdered state is more effectual. There is yet another preparation that is likely to be effective against Potato disease as well as mildew generally, and this is recommended by a French expert, M. Louis Lipière. It is known as lysol, is prepared in Germany, and briefly described as an alkaline liquid readily soluble in water. I intend spraying it over Potato haulm twice during the season, the first time about the third week in June, and again a month later. It will be applied at the rate of one pint of lysol to 30 gallons of water, and I calculate the cost of two dressings of a 20 perch breadth of Potatoes will be about 3s. This means a heavier outlay than would be the case if the lime and copper mixture was used, but there will be far less ceremony about it and less likelihood of clothes being spoilt, and if we only arrest the progress of the disease I shall expect crops considerably enhanced in value accordingly.

Turning to other crops. With the medium to heavy soils it is of the greatest importance that the surface be kept free and open, and where possible cracking should be anticipated, as it is more easily prevented than cured. Directly the rows of Onions, Carrots, and such like could be traced hoeing ought to have commenced, whereas many growers delayed this important work till the ground became too hard to be stirred. If hoeing were done before weeds are plainly discernible, and with far greater frequency than is customary, there would be a marked improvement in the progress of the crops, a fine loose surface preventing the loss of heat and moisture without excluding the air, while weeds would never have a chance to become a nuisance. Where the hoe cannot be worked—that is to say, between small plants, the surface can be prevented from cracking by means of a strong pointed stake.

The overthinning of root crops results in coarseness, while if the plants are left in a crowded state the other extreme follows—poor produce. What thinning is necessary ought to be done while yet the small plants draw readily—that is to say, when they will neither break off short nor, in coming out, greatly disturb those to be left. Caught at the right time the work can be done much more expeditiously than it could be later on, and the results be more satisfactory in other respects.

Crowded rows of Peas already present a yellow appearance. The midseason and late varieties ought certainly to have good room, or they fail to branch and crop continuously. I find it next to useless to preach thinning out, but the rows would in many instances pay for this timely attention. Unless the haulm branches the crop is so soon over that it scarcely pays for the cost of staking. It is much the same with Runner Beans. An intelligent cottager whose garden it is a pleasure to walk through adopts a very different method of growing Runner Beans to that generally in vogue. Instead of sowing his seed in rows he prefers to sow in patches about 3 feet apart each way. Three plants are eventually left at each station, and as many strong stakes used. From these few plants he obtains abundance of pods, and very frequently takes prizes from growers of repute.—W. IGGULDEN.

FLORAL FACTS AND FANCIES.—10.

DURING what has been called the fighting period of English history, our ancestors, or at least some of them, took more notice of the appearances of Nature than we perhaps suppose, and they frequently connected the return of certain flowers with persons, or events. Even upon those who paid little heed to the notes of birds the sonorous cry of the cuckoo made a decided impression, hence several flowers that opened just about the time it was first heard came to be associated with it—for instance, the Arum or Cuckoo

Pint and the Cuckoo Flower (*Cardamine pratensis*) to which I have already referred. Many of the flowers of May were also dedicated to the Virgin, because this was regarded as her month, so that it will always be an open question, when the old name of a flower is a compound of "lady," whether it alludes to the fair sex generally or to Our Lady in particular. Then the Cuckoo Flower is the Lady's Smock as well. A friend wishes to know why. Possibly the name arose from the display made amongst the grass by its white blossoms, especially along the banks of streams, where people sometimes laid their linen to bleach. Some correspondent of a scientific journal has suggested that "Lady's Frock" would be an improvement! Two pretty varieties of this flower that flourish in moist borders are a rosy purple and a double lilac.

The Marsh Marigold, also Lady's Bud, was called Cuckoo Bud too, flowering, says an old botanist, "when the cuckoo doth begin his pleasant notes without stammering." In our day it usually blooms before the cuckoo is heard or the Virgin's month arrives. 'Twas later perhaps when the winters were colder, on the average, than now, and yet old records tell of spring flowers being picked earlier than we usually get them out of doors. It has been said that the large golden flowers are suggestive of "desire for money," not an uncommon peculiarity in all ages. An old belief was that the cuckoo ate flowers to clear his voice. Amongst these the true Sorrels were mentioned, especially the Wood Sorrel, which, with several other names, had that also of Cuckoo's Meat and of Alleluia, because presumably it was coming into flower about the time this was sung in the churches. Possibly the oxalic acid these plants contain might be good for any throat. Formerly a green sauce made from them was eaten with fish. The evidence seems conclusive that the Wood Sorrel is not the Shamrock of Ireland, though some have argued for it. A species of Clover is probable, and as the Wood Sorrel is a symbol of "joy" it is not specially appropriate to the history of Erin.

Yet another flower of cuckoo name is the Ragged Robin (*Lychnis flos-cuculi*). We infer that arose from its being seen in flower just when the cuckoo is noisiest; but we have garden species of *Lychnis* or *Campion* which bloom through the summer, so, too, does the white *Campion* of hedgerows, with an evening fragrance like that of the *Petunia*. Some folks have fancied in the Latin name an allusion to the use of the down of a *Lychnis* for lamps; 'tis more likely to have arisen from the brilliancy of the flowers. We are told the Ragged Robin represents "wit," and no doubt this article is quite as frequently associated with ragged attire as with stylish dress. "Enthusiasm" is the meaning of the purple and scarlet varieties we see in gardens. Allied to these are the species of *Silene* or *Catchfly*, and, owing to the propensity of the leaves to ensnare small insects, in floral language they have a sinister meaning. The plants generally tell us of "snares," and a white *Catchfly* is symbolic of a traitor or betrayer. Curious is the legend of their classic name. We read how the wise goddess Minerva had an attendant—*Silene*, whose duty was to obtain flies for her owl. But one day she caught him napping instead of fly hunting, and she changed him into a plant which should continue to catch insects in all the ages.

Pinks and Carnations form an important group of garden flowers related to those just mentioned, and their many varieties have had numerous meanings given to them, only a few of which I can notice. The name of the genus, *Dianthus*, is significant of the regard in which the flowers were held at an early period—flowers that had something divine about them, and people often infused them in wine to extract a flavour resembling their aromatic perfume. Evidently the old name of Gillyflower given to our familiar native species was only a perversion of that of the month July, when the flowers were mostly in bloom. Near the end of the sixteenth century the first garden Carnation arrived in Britain from Poland, the flesh-like hue suggesting the name. Good old Parkinson in 1629 reckoned that he had about fifty sorts of Carnations and Pinks, and the Carnation became for many years the more popular, so that in 1702 Rea could enumerate 360 sorts, but shortly after our Scotch friends gave the Pink a new start. As a flower it has favourable meanings attached to it; people used to say figuratively that a person was the "pink of perfection," and a garden Pink of that colour represents "pure love;" while a white Pink is both a token of "beauty" and of "ingenuity," some say, and the mountain variety tells of "aspiration;" but "refusal" is implied by a variegated Pink or Carnation. The tall variety of the latter shows "dignity," a deep red Carnation is a symbol of "sorrow," and in a yellow one we see "disdain." It is probably owing to its rarity that one native annual, the rosy tinted and curious *D. prolifer*, has received no special meaning; but the wild Castle Pink, that mounts high on venerable walls, serves as a reminder of "courage." Many are the memorial specimens of it that have been taken from Rochester Castle and Fountain Abbey.

What shall we say about the Harebell, or Hairbell? Here we

have somewhat of a puzzle, but we can start with the fact that the plant originally called *Harebell* was not any of the *Campanulas*, it was the familiar Bluebell of woods, the wild Hyacinth, *Scilla nutans*. If we ask, "Why was it so named?" the probable explanation is, that it was prompted by the abundant growth of the species in coppices where hares were often seen, rather than by the notion that it furnished them with food. When the name was applied to the other group, which is also possessor of that of Bluebell, we cannot ascertain; and the spelling is debateable, the advocates of "harebell" think the growth of the flower suggested a comparison between them and the timid quadruped, but the supporters of "hairbell" point to the hairlike character of the stalks generally. Others yet think it may have been "airbell," because the *Campanulas* have something aerial about them; this we can hardly consider as more than a fancy. Cultivated in gardens they are often called Canterbury Bells. The particular species that seems to be best entitled to that name is *C. trachelium*, the Nettle-leaved Bluebell, long ago observed in profusion about Canterbury and other parts of Kent. "Acknowledgment" is put down as its meaning, and it acts certainly as if it had an acknowledged right to spread, for I have noticed how it multiplies on waste ground where it has got possession. Clare, the poet, tells us it was once a favourite trick with boys to introduce glow-worms at night within its purple bells. It was the Throatwort of our ancestors, and considered to be a good remedy for hoarseness.

One of the earlier species grown in gardens (perhaps *C. persicifolia*) was called the Virgin's Violet 300 years ago, *Viola Mariana*; and the dwarf *C. alba* appears to be the species that was known in France by the name of "Nun of the Fields." This, and other kinds that are white, are said to represent "gratitude;" but the blue and purple *Campanulas* tell of "submission" or "grief," the drooping flowers of most kinds suggesting the idea. No one disputes that the *C. rotundifolia* is the "bonnie Bluebell" of Scotland, though abundant also in the south; then the odd name of Venus's Looking-glass is believed to have been first given to our native *C. hybrida*, since then it has been transferred to several garden varieties. In the *Rampion*, *C. rapunculus*, we have one of the tribe which furnishes an edible root, formerly cultivated as a winter salad.—J. R. S. C.

DISBUDDING PEACH TREES.

THE Peach tree being generally grown on the extension principle, a great deal of disbudding is required on healthy free-growing examples before the number of shoots is reduced to the proper limit. In this operation, like all others, there is a right and a wrong way of performing it. Some few years ago I saw a gardener disbudding his Peach trees; the growth of the shoots were 5 or 6 inches in length, and these he was pulling off wholesale, and very often a long strip of bark from the branch as well. This is undoubtedly a wrong way, for it would be a serious check to the trees to be denuded of so much foliage at one time, and the force expended on these useless shoots ought to have been concentrated on those required for the following year's fruiting.

Disbudding should be commenced early, say when the growth has extended about an inch or so, or even sooner, the growths then being very numerous. It should be done gradually, the fore-right shoots and those growing towards the wall may be rubbed off first, the others by degrees, until sufficient only are left for furnishing the bearing wood for the following season. A few extra may be allowed in case of accidents. A great mistake is made by leaving too many, some of which would have to be cut away at the winter pruning. No more should be allowed than can receive the full benefit of the sun and obtain abundance of light and air; then we may expect, other things being equal, firm well-ripened wood in the autumn, which we all know is one of the great secrets of success in fruit-growing.

It is a common practice to leave at the extremity of the current year's fruiting wood a growth for the purpose of drawing up the sap to the fruit. This shoot is stopped when a few inches of growth is made, if it is not required for the extension of the tree. Another growth is left as near to the base of the shoot as possible, to be laid-in for fruiting the next season. All the shoots between these two are removed unless the growth is a long one, when more will be left; but this will depend in some measure to the distance allowed between the main branches.

My own practice for the last four or five years has been rather different, as I am inclined to think that it is not a good plan, in all cases at any rate, to remove the whole of the growths between those left for the following year's fruiting. In disbudding our trees all growths at right angles to the wall are of course taken off in the ordinary way, but instead of removing all the others not required for furnishing the tree some of them are allowed to grow a few inches, and then stopped at the third or fourth leaf, and all subsequent growths pinched at one leaf. Should these be found to make the tree too dense, as the main growths extend some of them can be reduced, or cut away altogether. These are cut clean off when the trees are pruned or in the autumn, so that the light and air may have free access to the wood that it is necessary to retain. I do not suppose that this is anything new, but mention it to ventilate the subject. My reason for working on these lines is because I think the fruit swells more evenly and quickly in its early stage; and

in young trees that are likely to produce very strong wood, which does not as a rule give the best results, it allows more outlets for the sap.

In conclusion, a word about disbudding young trees. I have seen cases in which too many branches have radiated from the centre of the tree, and so closely together that no young growths could scarcely be laid in between them. This is a mistake that can very easily be made, unless attention is given to training when the tree is quite young. The branches may be trained closely together at first, but in a year or two the wood should be laid-in in such a way that some of the smaller branches may be removed and cut off close to the stem; the growths on these can be stopped at the third or fourth leaf, and a few more may be allowed on branches that it is intended should remain to take the place of the temporary ones when the latter are cut away. As the tree increases in size subsidiary branches should be trained from the main one, and in such a way that they will not be less than 1 foot apart.—J. S. UPEX.

LINARIA MACEDONICA.

THE correspondent who sends flowers of this plant will be glad to know that many species of Linarias, or Toad-flax as they are often called, make charming plants when grown in pots for a cool house. The genus being a large one, including both hardy herbaceous and annual kinds, it is rather difficult to make a selection; but *L. macedonica* (fig. 82) is highly ornamental, and might be used with good effect. It commences to bloom in early spring, and continues for a long time. Like most of the Linarias it is of easy culture, requiring only some rich soil and a light position in a cool house or frame. It freely reproduces itself from seeds, growing about 18 inches high, and flowers profusely in a short time. The flowers are of a bright orange colour and very attractive.

IN A SCOTTISH MANSE GARDEN.

I AM writing this article for the *Journal of Horticulture* on the 20th of May, a day which last year was fatal to the hopes of horticulturists, and especially of rosarians in many regions where plants were much exposed. What a contrast we have been experiencing to-day. To sit in this garden beneath the lustrous leaves of the wide-spreading Sycamore, and contemplate the glories of the early summer flowers—the classic Narcissus, the Viola, the Myosotis, and fragrant Auricula; while the odour of the Sweet Briar ever and anon comes floating to my consciousness is surely the purest and sweetest experience that mortal man can know. What affluence of blossom there is on the Apple, the Pear, the Cherry, and the Plum! Conspicuous among these are the Morello Cherries, which look as if they were covered with a shower of snow. On such a day as this I feel inclined to echo in my heart those beautiful words of Alexander Smith, one of the truest poets and most thoughtful essayists that Scotland has produced—

"Daisies are white upon the churchyard sod,
Sweet thoughts the clouds lean down and give.
The world is very lovely. O, my God,
I thank Thee that I live!"

Though this memorable day, now fading into twilight to the music of the merle and the passionate thrush, has been one of the most beautiful within the range of my remembrance, its immediate predecessors have not been equally blessed with brightness and peace. North-easterly winds have of late been our frequent experience, too often touched at night with the bitterness and stern severity of frost. As a natural consequence, that interesting transformation has been in my garden very seriously affected—the development of the flowers into the embryonic fruit. The Early Rivers, Black Eagle, and Werder's Cherries have suffered most because more greatly exposed than others to the northern blast. For these at least a more benignant atmosphere has come too late. But, on the other hand, the Pitmaston Duchess and Early Crawford Pears (the latter of which is preferred by Dr. Hogg to Citron des Carmes) the stately Czar and Early Rivers Plums, and most of the Apple trees have providentially escaped. It is quite possible that the imperfect evolution of the Cherries I have mentioned, and their manifest susceptibility to adverse atmospheric influences, may be to a large extent attributable to the fact of their somewhat recent introduction. When more strongly established they will doubtless exhibit greater hardiness of constitution and more absolute assurance of productive strength.

Rose trees are fully a fortnight later than they were last year. The earliest here will be Rosa Harrisoni, the Austrian and Persian Yellows, the Penzance Briars, Gloire de Dijon, A. K. Williams, Crimson Bedder, Gustave Piganeau, Souvenir d'un Ami, Anna Olivier, White Lady, and Margaret Dickson. All of these will be in bloom this summer before Maréchal Niel, usually the earliest variety in my garden. Though growing on the south wall this grandest of Noisettes has been at least a month later than usual in unfolding its delicate virginal leaves. On the other hand, and as if by way of compensation, the Oriental Lilies are farther advanced than ever I have seen them at this period of the year. This is especially true of auratum, excelsum, candidum, chalcedonicum, Szovitzianum; speciosum Kraetzeri, Henryi, and giganteum, of which the last-mentioned Lily has a stem 8 inches in circumference, and is

making magnificent growth. It would be worth growing if only for its foliage, which is exquisite in shape and exceedingly effective, more glittering than that of Aralia Sieboldi.

This is the result of my horticultural observations, that late flowers are early, and early flowers are late. For example, I have had during the last three weeks a unique combination; the Queen of Spain Daffodil and Narcissus poeticus blooming side by side. The Snowdrop and the British single Daffodil were also for some time contemporaneous this year. Violas are later, and Aquilegias somewhat earlier than usual; *A. coerulea hybrida* is already in flower, and glandulosa, chrysantha, canadensis, and californica are rapidly preparing to follow in its train. There are few herbaceous flowers more impressive than these. I recommend them as admirable substitutes for Orchids, to those who cannot



FIG. 82.—LINARIA MACEDONICA.

afford the expense inseparable from the cultivation of the latter aristocratic flowers. They would, I doubt not, be equally admired were they only as rare.

I should perhaps have mentioned in previous contributions that I am greatly interested in the open-air culture of the Magnolia, of which I possess the following varieties:—hypoleuca, purpurea, Watsoni, stellata, parviflora, purpurea, Lenne, Soulangeana nigra, macrophylla, and the famous conspicua, perhaps of all these the most universally known. Though natives of Japan and South America, they are of sufficiently vigorous constitution, only requiring, when grown in our gardens, a sheltered situation, southern exposure, and a moderately fertile soil. They are sometimes cultivated in shrubberies with considerable success, but when hemmed in on every side by Azaleas and Rhododendrons, as they almost invariably are in such a position, they have not an equally commanding effect. Here they are grown on a long open border, protected by a lofty hedge of Hawthorns from the northern winds, where, alternating along its whole length with Japanese Lilies, and overlooked by lines of Noisette Roses, which scale the south wall, they find themselves naturally, to use the language of Herbert Spencer, in correspondence with their environments.

Among my latest acquisitions are certain plants of Oriental extraction, and bearing the following remarkable names:—*Embothrium coccineum*, *Hamamelis Zuccariniana*, *Eucalyptus ficifolia*, *E. citriodora*, and *Physalis Franchetti*.—DAVID R. WILLIAMSON.

MODERN GRAPE GROWING.

PLANTING.

(Continued from page 425.)

WE will suppose that a house is ready for planting by the first week in March, that it has an inside border, that the soil has been prepared as previously directed, and is in good workable condition, neither too wet nor too dry. The Vines shall have been grown in the manner I have suggested, either on the premises or bought from a trustworthy source. They ought not to be of more than one season's growth, short jointed, quite round, moderate sized canes with large plump eyes, and thoroughly ripened not later than the previous September. For the uninitiated I may say that moderate sized canes should measure about $1\frac{1}{2}$ inch in circumference, and the eyes or buds average about 4 or 5 inches apart.

It may be necessary to say once more that although most of the cane will be cut off, it is advisable to be thus particular about its condition, as it generally affords an index to the condition of the roots. The Vines should be procured not later than the beginning of November, and they may be ordered much earlier, as growers will always select and mark them for early purchasers. If a cold house is not available they may be kept outside for a time with the pots plunged or covered in some way merely for the protection of the pots, for if the Vines are thoroughly ripened frost will not harm either tops or roots. Some time before or about Christmas, when the weather will permit, they should be taken under cover where the frost can be merely kept from them, and not later than the beginning of January they should be cut down to the desired length. The length they are to be left is governed by the situation in which they are to be planted. For planting in any of our houses they would be cut down to two or three eyes, but in some cases it is necessary to leave them 4 or 5 feet long.

If, unfortunately, there is a dead wall in front of where the Vines are to be planted, or anything else to obstruct the light, they must be left a sufficient length that the sun will reach the point where the new growth of stem commences. Even then they will be under a disadvantage compared with those on which the sun can shine quite down to their base, but we must do our best with such materials and erections as are placed at our service. Mr. Tillery, when gardener at Welbeck, while some costly vineries were being built, offered a little advice which was unheeded, turned away and said, "Well, if your Grace builds me a barn I will grow you some Grapes." I do not advise anyone to speak to his employer in this way, though very often there is a great temptation to do so, but to try and do his best whether he has vineries or barns to deal with.

The canes being cut to the proper length should still merely be protected from severe frost, and towards the end of February, or whenever there is a suspicion that the eyes are likely to start swelling, they should be kept in a light position, and the stems, if any, should be tied erect. Early in March they will start into growth naturally, and when there are visible signs of movement they should have a minimum temperature of 55° , and when they have made 2 or 3 inches growth they will be in the best possible condition for planting.

Now as to the position for planting. There seems to be a very general idea that the nearer to the front wall of the house you can plant the better, but I am of opinion this is about the worst position you can choose. If there are one or two hot-water pipes near the wall and another set about a yard or 4 feet from it, then the middle between these two sets of pipes is the proper place to plant. There need not be any waste of room, for it is an easy matter after training the main stem upwards to allow a growth from it to go downwards and fill up any space there may be; and even if the position is not good enough for a bunch of Grapes to grow, the space will well repay for filling with leaves, provided they get the full benefit of the sunshine on them. None of our Vines is less than 18 inches from the wall, many of them are 3 feet, and I prefer the greater distance.

Next, as to the manner of planting. The soil should be entirely shaken away from the roots, which is an easy matter at this stage, for root action, or more correctly, perhaps, root growth, has not yet commenced. The roots should be spread out evenly all round, slightly covered with pulverised soil, and trodden rather firmly; then a little more loose soil must be scattered over, and when the surface becomes sufficiently dry, say in a day or two, according to the weather, it should be watered to settle the soil between the roots. If the stem is buried an inch deeper than it was in the pot it will be quite sufficient.

As to distance, ours are very little less than 5 feet apart, and if large bunches of fine fruit are wanted this is not too much room, and even for ordinary fruit they should not be nearer than 3 feet. Shade is seldom required when Vines are planted in this condition, and they may be treated as to temperature and moisture at once like established Vines—a minimum temperature of 55° , and a damping of the floor at the time of opening the ventilators, and once or twice while they are open during the early portion of a bright day.

If a house has to be planted at any time after the beginning of April a different mode of procedure is necessary. One plan is to have one-year-old Vines cut down to one or two eyes, started into growth,

reotted into 10 or 12-inch pots, and grown on till such time as the house is ready for them.

If this is any time before July the roots will not have become matted, and it is best to plant the balls entire. This is done by making a hole sufficiently large to lower the pot into it; then break the sides of the pot with a hammer and take out the pieces. It will do no harm to leave the bottom in. Then press the soil carefully round the ball as if repotting a plant. Water when necessary, and the Vine ought to go on growing without feeling the shift.

Young plants of the current year's rooting are also very suitable for planting from May onwards, and if planted in a growing condition before they become pot-bound they should also be planted with the balls entire, and being in smaller pots they may be turned out into the hand and the pots saved.

If the planting has to be deferred till August or September, plants of the current year's rooting that have been kept in small pots and have their lower part ripened are very suitable. In this case they should be shaken out of the soil and have their roots well spread about, and they will make sufficient new roots before winter to establish themselves and be in the best possible condition in spring to make a good and early start after being cut down at the new year to one or two eyes.

When the Vines have to be planted in an outside border the operation is best performed at the end of February or beginning of March before the buds have made much progress. It is best to have good, medium sized, well ripened canes for this purpose, and cut them to the required length about Christmas time. In this case, too, all the soil should be shaken off the roots and the latter well spread out in the border, which it is presumed will have been covered to prevent it becoming too wet.—WM. TAYLOR.

(To be continued.)

QUESTIONS AND ANSWERS.

As it was suggested a few weeks ago that some readers might possibly like to indulge in a little home exercise in answering the questions propounded by the Royal Horticultural Society to students in the recent examination, I have been trying my hand at the task, and send the results. I will deal with questions in Division B another week.—E. D. S.

DIVISION A.—ELEMENTARY PRINCIPLES.

QUESTIONS.

- 1 (a), What substances do plants absorb by means of their roots? Explain the process of absorption by the root.
- (b), What elements do plants obtain from the air, and by what agency do they obtain them?
- 2, Explain the effect on flowering plants of an adequate, a deficient, or of an excessive amount of heat.
- 3, How are "cuttings" made? Describe the changes that occur during the process of "striking."
- 4, What are the objects sought to be obtained in digging the soil?
- 5, Write as full and orderly a description as you can of any plant in common cultivation, through all stages of its growth, from the germination of the embryo to the formation of the seed.
- 6, What organs of the plant are represented respectively by an Onion, a Cabbage, a Potato, Beet, Turnip, and a pea-pod?
- 7, Describe the mode of growth of the common Mushroom.
- 8, What is meant by "green fly"? What is the best application to rid plants growing out of doors of this pest?

ANSWERS.

1 (a), Plants absorb by means of their roots organic and inorganic elements consisting of carbon, oxygen, hydrogen and nitrogen, sulphur, potash, lime, iron, magnesia, silica, and soda. These elements are either absorbed alone or enter into combination with one another, forming chemical compounds, which enter the roots by their surfaces, root hairs, or spongioles, at the extremities, passing upwards through the stems to the leaves, where under the action of sunlight certain changes are undergone, some elements being retained and others given off again into the atmosphere.

(b), Plants obtain the organic elements, carbon, oxygen, hydrogen, and nitrogen from the air, chiefly in a gaseous form, but also in a liquid state, as well as by chemical combination of organic with inorganic substances. The leaves absorb a certain amount of the organic elements in a gaseous form, but the bulk is absorbed by the roots.

2, When plants have an adequate amount of heat at the flowering period, with the roots healthy and numerous, moisture sufficient in the soil and atmosphere, as well as a due supply of air, the flowers develop boldly and in a perfectly regular manner.

When heat is deficient the roots are comparatively inactive, hence the forces which sustain and nourish the blooms are incapable of developing them to the fullest extent, which may cause their decay prematurely.

An excessive amount of heat incites the development of flowers unduly, but frequently produces wood growth at the expense of bloom, and this will be of a weak unripe nature. It may also, especially in the absence of a due amount of moisture, invite, if not cause, the attacks of insects.

3, "Cuttings" in the majority of cases are prepared by securing suitable portions of wood with foliage, young and succulent in many

cases, half ripe in others, cutting the stems immediately below a joint from which the leaves usually spring, removing the two lower leaves, and possibly the pair above, retaining four good leaves and a healthy growing point. Cuttings of many deciduous plants may be prepared and inserted in spring and autumn, at the first period selecting young firm shoots or short stubby growths, taken off with a heel of old wood attached. In autumn young ripened wood is selected and cut into suitable lengths with the lower leaves removed, so that a clear portion is obtained to insert in the soil, which should be of a sandy character in a sheltered position or where the protection of a hand-light or frame can be afforded. The process of rooting is as follows:—First, a portion of the sap or organised matter contained in the cutting descends to the base, collecting there, and forms a callus. From this callus, sooner or later, roots emerge, take hold of the soil, extend and increase, the rooting thus being accomplished. In the case of autumn-inserted cuttings—for instance, Calceolarias, Carnations, and Roses—roots are seldom produced before the days begin to lengthen. The callused cuttings retain their freshness as if rooted. Cuttings of many hardwooded plants and spring-propagated Roses are best callused under cool conditions, then incited to root by the assistance of a gentle bottom heat.

4, The objects to be obtained by digging the soil are its deepening and amelioration by the thorough mechanical division of the particles and their exposure to the atmospheric elements, whereby a freer admission of air, moisture, and warmth is secured, the whole being rendered more available by the roots of plants.

5, A Pea placed in the ground absorbs moisture from the soil, and with the assistance of heat the substance of the seed swells. The vital part within which is the embryo proceeds to develop. It throws out from its apex a green point, which is termed the plumule or growing point; from the base the radicle, which subsequently forms the root. Attached to the embryo are the cotyledons, which serve to feed the embryo during its early stages of growing existence, or until the first leaves are formed and young roots originated, when they decay. The plant is then established in the soil, and gradually develops larger stems and leaves. This is carried on rapidly under favourable circumstances, the plant also throwing out tendrils by which it may cling to objects for support. On attaining to the normal height of the variety the plant begins to flower, the blooms becoming fertilised by the action of the wind or insects distributing the pollen from one flower to another. After this the petals fall and the pods commence to form. Each pod contains the seed closely attached to the inner epidermis. The seed derives support from and is protected by the pod, which draws its sustenance from the plant. The final stage is reached when the haulm turns yellow. The pods are also affected, eventually drying and cracking, and the fully developed dried Peas are seen.

6, The Onion represents an underground stem in the form of a bulb. A Cabbage consists of leaves more or less closely folded together. A Potato is a thickened part of an underground stem or branch, and is termed a tuber. Beet and Turnips are the thickened fleshy parts of roots in which material for future growth is stored. A Pea pod is the seed-bearing organ.

7, The origin of a Mushroom takes place from the white thread-like filaments called the mycelium, which spreads rapidly in a favourable medium of soil or manure. At certain parts the forces contained in the mycelium combine and form cells, which multiply and enlarge with extraordinary rapidity, terminating in the development of a Mushroom.

8, "Green fly" is the common term for aphides of that colour, insects which infest plants outdoors and under glass. A solution of six parts of water to one of tobacco juice, thoroughly mixed and applied with a syringe or sprayer, is one of the many best applications for ridding plants outdoors of these pests.

GROWING PEAS AND PREVENTING MILDEW.

I KNOW it is a common plan amongst gardeners to practise and advise that Peas, especially those for late crops, to be sown in trenches somewhat after the method pursued with Celery. The main object in the trench culture of Peas is the prevention of mildew by providing what is considered adequate moisture, by affording a root run into a mass of manure in the trench. Too often have I seen Peas growing in such trenches infested with mildew to a serious extent to consider the plan a good one.

A trench 15 inches wide is dug out, and as much, or more in depth; manure 9 inches thick is put in the trench, trodden down quite firm, a few inches of soil is laid on the manure, the Peas sown. By the time the Peas are several inches high the soil is some inches below the surface, affording space for a good supply of water. My objection to the system is this, the roots quickly take possession of the manure, and owing to the wall-like sides of the trench they do not spread into the surrounding soil, but are contracted as it were to the narrow space in the trench. As may be imagined, during a spell of dry weather, unless water is very often supplied, the roots quickly absorb what moisture the manure contains, and then comes their suffering in consequence of an insufficiency of supply, with the usual result of a full crop of mildew.

How often do we see the haulm of Peas attacked with mildew after a spell of dry weather. It is one of the most difficult matters imaginable to check the spread of the fungus when once it has obtained a thorough hold. As a rule drought at the roots is the main cause of the attack, and I always apply a 3-inch mulching of half-decayed horse manure on the approach of dry weather.

It is generally considered that Peas in light land suffer much more from mildew than those growing in heavy land. My experience does not altogether confirm this theory. Directly the rows are earthed we apply the mulching, first digging the soil, as if it is trodden on when wet it kneads together surprisingly. All practical gardeners know the advantage gained by having the soil in a loose friable condition for the roots to run in, as well as a means of retaining moisture. Half-decayed horse manure is probably the best material for mulching purposes, though decayed vegetable refuse mixed with wood ashes, old potting soil, and leaves answers admirably. Even if mulching with any material is not practicable the next best thing to do is to keep the soil, for at least 1 foot on each side of the plants, well broken up, so that the surface cannot crack and allow the moisture to escape, and thus save the crop by retaining the moisture in the soil.—E. M.

SINGLE DAHLIAS.

AT this period of the year summer bedding is the uppermost thought in the minds of most gardeners, and during the next few weeks these operations will be in full swing. Stern recollections of the severe frost on the 20th of May last year will have been sufficient to advise all not to be in too great a hurry, but rather be the gainers by waiting until all danger of frost is over. In many large gardens the question of producing a supply of plants sufficient for the demand is one of much consideration, and to meet this Dahlias are largely called into requisition, and the bright display which they afford is ample recommendation for their use. The number of pretty Cactus and fancy varieties that have been introduced during recent years is very large, and truly many of these are extremely beautiful and worthy of a place in any garden.

It is my intention, however, of speaking of a class which do not appear to be cultivated so largely as they deserve—namely, the singles, which, for producing abundance of elegant flowers, have no superiors. Strange to say, in this class the old varieties still hold full sway, as few of the additions are very far in advance of those of earlier introductions. They are especially suitable for the adornment of gardens where the landscape is undulating and of natural formation. Another point in their favour, often found wanting in the double varieties, is that they throw up their profusion of brightly coloured blooms well above the foliage, this adding much to their value from a decorative point of view.

So simple is their cultivation that any notes on this is unnecessary, and for varieties I have proved from experience that the scarlet *Formosa* is one of the very best. The flowers are bright and effective, and produced in such large numbers that a small bed makes quite a feature. It is in groups of three or four that they are seen to the greatest advantage, and so planted add much to the beauty of any garden even during the most unfavourable of summers. The elegance of the long spikes of flower also renders them very useful for decorative purposes.

Negress is a variety growing taller, and of a very dark velvety colour almost approaching to black, which in the sunshine is very pleasing. In growth *Negress* differs from any other variety, the leaves being cut and fimbriated. The "White Lady of the Lake" is almost indispensable in any collection of singles, as it produces abundance of pleasing flowers which form a charming contrast to any other colour. It is very useful for forming the outside rows of beds planted with mixed kinds. The single yellow is likewise pretty and useful, as, like all of the class, is extremely floriferous, and almost indifferent with respect to situation and weather. *Juno* is a tall growing kind of a bright purple colour, and suitable for forming the back lines of large masses, for which purpose it is mostly used.

Another useful scarlet variety is *Mrs. Beauman*, with flowers larger than *Formosa*, though not borne in such profusion. *Edith* is of a pretty salmon tint, and commendable for contrasting. Though there are many other varieties all worthy of a place in addition to the above I have refrained from mention of them, as fewer kinds of decided colours are preferable to growing too many, in which case there is danger of confusion and clashing of shades. In conclusion, I would add that single Dahlias are well worthy of a place where they can be accommodated in large numbers, by which the effect of their graceful beauty is shown to the greatest advantage.—G.

THE TEMPLE SHOW.

No doubt this very fine exhibition has ere now undergone enough criticism. Nothing in this world, not even a Temple show, can be perfect, and if there be criticism no doubt it is not at all unkindly meant, but is rather a product of that earnest yearning which so many people have for ideals that may never be realised. Thus from an artistic point of view the show was a failure, but that is inevitable because of the surroundings. No man, however great his capacity to design or to execute, could accomplish more under existing conditions, although in relation to individual groups perhaps much more might have been done even with such surroundings.

But if artistic skill in grouping was lacking, the show was all the same one of very remarkable excellence. It showed to the world, though in a limited degree, how great are our horticultural resources, and what a magnificent display of a floral nature can be produced even when the surroundings are not of the most helpful. Very likely there were some who went only to see, who wished they could have had a free hand in arranging some of the collections. Furnished as most of the material is

by members of the horticultural trade, it is but natural they should wish to stage things in their own way for business purposes, and that way is too often far from being attractive. Any attempt to compel certain styles of arrangement would be productive of a revolt, and therefore, even if the surroundings did admit of it, the production of artistic effects would be out of the question.

It would be most unjust to assume that grace and elegance in the grouping of plants is not an attribute of the British people. That we are not in the concrete a tasteful people there can be no doubt, but we have had in the past abundant evidence, that given a free hand, we have numerous designers in floral arrangements who would be hard to beat anywhere. But when obliged to take the form they must necessarily do at the Temple, it is obvious that any grower's flighty fancy has to be restricted, and the best made of the difficulty. The long tents have side tables, and the centre ones are too narrow and rather too high. It would be a distinct advantage to exhibitors in these tents were the side tables placed on each side of the centre one, and a trifle lower, as then a finer face could be given to each collection, much more scope for arrangement, and a far bolder effect produced.

The public would gain also in having only one face of plants or flowers to look at on either side, and thus save so much twisting of the neck as is now needful, and so much perambulation, as to see everything two turns round each tent are requisite, thus unduly crowding them, and making the visitor very tired. Even in the large tent, where the material was so fine and varied, very little of artistic effect was or could be seen. Where Palms or other common decorative plants were introduced naturally elegance could be combined with the grouping, but many things—balloon-shaped Clematises, large Caladiums, big pot Roses, Rhododendrons, Acers, and hardy flowering plants—do not present the most promising of material for grouping unless associated largely with other things. Mr. C. Turner's group of Roses, thanks to the free use of the beautiful Crimson Rambler, was undoubtedly very pleasing, and should furnish a valuable hint to others another year how to employ some graceful material if at hand.

Of all plants naturally suited to produce eminently light elegant arrangements Orchids are of the best, and yet of all the immense numbers present none were so utilised. Presumably it cannot be otherwise, as each grower wishes to show off the abundance of his Orchid riches rather than to make with their aid the most elegant display. I observe the Council awarded Mr. Rivers a gold medal for his group of Nectarines in pots—a triumph in cultivation and transit—but artistically of no merit. Would that next year a real award could be offered for the group of plants in the show, apart from intrinsic merit, that was most gracefully and artistically arranged. It should also be for groups in which not foliage plants such as Palms, but rather flowering plants comprised at least one-third. Such an award would, without in any way interfering with the present general arrangement, at least help to stimulate growers and exhibitors of groups in the direction of trying to do something artistic.

Of course the groups in the large tent would have the best chance, but then, so far as practicable, all exhibitors who wished to compete for the medal should have the first claim on the spaces in that tent, and they should in each case be rigidly restricted to a certain area, very much room is therefore some encouragement to those who set up such fine but still generally muddled groups of hardy flowers. These are invariably mere conglomerations, and it is feared that whilst permitted to be so exhibited in endless quantity, these collections will never be other than conglomerations. Messrs. Backhouse & Sons showed in a very beautiful way, and Messrs. Paul & Sons strove in the same direction to show how artistically alpine plants may be staged, but cut hardy flowers seem to baffle ingenuity. Anything that served to illumine with grace the present long monotonous banks of these flowers would indeed be welcome.—A. D.

STRAWBERRY AUGUSTE NICAISE.

FOR gentle forcing this is a very fine variety, and some growers can command success by subjecting it to temperatures sufficient to mature them early. As a rule, however, the finest fruits come from midseason or later plants. Well grown in pots it is equal to any variety I know of in point of crop and weight, but outdoors I do not find it nearly so prolific as Sir Joseph Paxton, Noble, President, James Veitch, and others here.

As Strawberries vary so much in different soils, this failing with us may be quite unknown elsewhere. As I had no previous experience with it as an outdoor variety, I can only invite the opinion of other readers who may have had the opportunity of proving it. Two acquaintances of mine grow the variety largely in pots; indeed, it commands greater space and favour with both than any other sort, and judging from the results obtained they appear to be fully justified in their choice. It has been said that berries weighing 3½ ozs. each have been grown at Leighton, but I have never had the statement verified by Mr. Mann, the gardener, and therefore have never accepted it as an established fact. I saw a large number of plants there in the month of April, and the ambition for very large fruits was clearly apparent, as a few strong plants in 7-inch pots were permitted to carry only four fruits each.

Of Mr. Robinson's plants in pots of the Auguste Nicaise I have previously written, and the attainments of this season have been fully up to the old standard. In a good dish gathered during the past week, there were twenty berries that weighed 2 ozs. each and over, the largest which would cover the palm of the hand, weighing 2½ ozs. Such fruits

cannot fail to give satisfaction at the dinner table, and the fact of its being an annual attainment proves that it is no mere accident, but that the grower fully understands the cultural treatment the variety requires.

Whilst in bloom the plants occupy a low sunk pit with moveable lights, and these are tilted in front so as to allow a current of air to play on them—a valuable aid in securing a good set. Individual attention to the opening flowers is also given, and light top-dressings of chemical manures given occasionally promote the requisite vigour for carrying them on to the ripening stage. That they are never allowed to suffer for want of root moisture no further evidence than the uniform excellence of the crop is required. From seven to nine fruits are allowed on each 7-inch pot, and small berries, of course, are unknown. Before the stems are brought down by the weight of the fruit small twiggy supports are given to keep them in a natural position. The colour is very bright and glossy, and such a dish as I have described would be considered creditable to any grower.—W. S.

ROUND PECKHAM RYE.

WITH the inhabitants of South London the above name is a household word, the large expanse of open ground being looked on by the people as being entirely their own, and so far as freedom of use is concerned such is certainly the case. To see the famous Rye in the glory of its popularity it is necessary to pay a visit on some Bank Holiday, when there is ample scope for anyone of that turn of mind to study many different grades of society. It is on such occasions that the jolly coster and his "donah" are glad to escape for a short time from the environs of Covent Garden, and while away their few idle hours on this public playground.

Such a place, however, as a real park on the Rye was a few years ago unthought of, but through the energy of the London County Council a large tract of land was purchased, the skill of landscape gardeners brought to bear on it, and what was once wild and uncared for is now transformed into a pleasing landscape equal in every respect to the pleasure ground that surrounds many a nobleman's mansion. As it is but little over a year since the park was open to the public the flowering and ornamental shrubs are yet but small, and here, like everywhere else, many have suffered severely from the effects of the past cruel winter.

In spite of this, however, the walks, turf, and borders present a neat and well-kept appearance, which is in every way creditable to Mr. Ashmore, the superintendent, and his staff. A pleasing feature in the Park is its natural appearance, rendered so by its richness in forest trees, chiefly Elms, which were left undisturbed at the time of its formation. The landscape abounds in rustic peeps and delightfully shaded walks, one of which, known as the "Lovers Walk," struck the writer as being an ideal spot for a hot summer's day, covered as it is by a dense canopy of foliage, and proof against the rays of the brightest sunshine.

Long lines of sweet Hawthorn bushes abound on every side, now charming with their profusion of white flowers, emitting a perfume which cannot fail to remind one of spring time in country lanes. These have formerly done duty as hedgerows dividing meadows, and it was a happy inspiration that led to them being left in their natural form. In the centre of the Park are several acres of copse not yet in the hands of the Council, thickly studded with tall forest trees, under which there is dense underwood, where many wild flowers are to be seen blooming profusely.

From this spot comes the sound of the cuckoo's welcome voice, thrushes and other song birds build nests and raise their broods in perfect safety, and in the stillness of the night may be heard the lays of the nightingale. Perhaps some reader will say there is nothing extraordinary about this, if so I would ask him to remember that all this is within a short distance of one of the thickest populated districts of the metropolis.

In the more cultivated portions are to be seen in profusion of bloom, Lilacs, Guelder Roses, Spiræa callosa alba, Rosa rugosa, and many others, while, strange to say, Wallflowers have mostly passed safely through the ordeal of the winter, and now present a bright appearance. Long stretches of green turf look verdant and healthy, especially considering it is only a comparatively short time since portions of it were laid, and in one part lovers of the tennis racquet are free to display their skill, while in another wielders of the willow can indulge in their favourite sport.

As there is but little of that garden-like appearance here which characterises the neighbouring Park, Dulwich, formal flower beds are not a feature, nor would they be in character with the rustic surroundings. In spite of this, however, the borders have been recently gay with Narcissi and other bulbous flowers, pleasingly intermingled with the shrubs, and now may be seen in their places many patches of popular annuals just peeping through the surface, which give ample promise of a future bright display. The situation is everything that could be desired, the air being fresh and clear, while all round lies rich undulating scenery, the like of which adds so much towards making many London suburbs pleasant.

There are several small improvements yet to be completed, but with the consideration that it is only a little over twelve months since this pleasant spot was made a public resort, the general condition is truly creditable, and, it is gratifying to know, appreciated by the people, who have in this and other such places privileges unknown to London dwellers of but a few years ago.—WANDERER.



EVENTS OF THE WEEK.—In the provinces during the coming week at least three great shows will be held. On Friday the annual show at Manchester opens, on Saturday will be held the Tamworth Pansy and Viola exhibition, while on Monday (Bank Holiday) the Southampton Society will be holding its show.

— **WEATHER IN LONDON.**—During the afternoon of last Thursday there was a heavy fall of rain for about an hour in the metropolis, which caused visitors to the Temple show to rush quickly to the tents. Since that day, however, beautiful weather has prevailed.

— **WEATHER IN THE NORTH.**—During the week ending the 28th inst. the weather has been generally warm and fine. On some days thunder occurred, and two or three showers have fallen, but more rain would be welcome.—B. D., *S. Perthshire*.

— **THE PARIS EXHIBITION.**—The show of the National Horticultural Society of France opened in the Tuileries Gardens on the 22nd, and closed on the 28th inst., may be termed a success, all sections being fairly represented. Hardy flowers from Messrs. Vilmorin, Andrieux & Co., and Forgeot & Co. were exceptionally brilliant, Azaleas, Caladiums, and Palms being also well shown. Messrs. F. Sander & Co., St. Albans, staged a group of Orchids, *Dracaena Sanderiana* and other plants that attracted much attention, and which was adjudged a gold medal.

— **A ROYAL CEDAR AT WARWICK CASTLE.**—Before leaving Warwick Castle on Monday, the 20th inst., H.R.H. the Prince of Wales planted a young Cedar of Lebanon near the site of the historic old Cedars which were blown down in the recent gale. Although centuries must elapse before this young tree attains to the grand proportions of its pioneers, it is interesting to think, and hope, that many future generations will look with pleasure on its spreading branches, and ascertain by the inscription beneath it that it was planted to commemorate His Royal Highness's second visit to Warwick Castle, adding thereby another link in the long line of historic associations which cluster around the famous stronghold of the ancient midland town.

— **KEW GUIDES.**—The following are the guides on sale at the Royal Gardens, Kew:—Key plan and index to the Royal Botanic Garden and Arboretum, Kew. Third edition. 1893. Price 2d. Official guide to the Museums of Economic Botany. No. 1: Dicotyledons and Gymnosperms. Second edition, revised and augmented. 1886. Price 4d. Official guide to the Museums of Economic Botany. No. 2: Monocotyledons and Cryptogams. 1894. Price 4d. Official guide to the Museums of Economic Botany. No. 3: Timbers. Second edition, revised and augmented. 1893. Price 3d. Official guide to the North Gallery. Fifth edition, revised and augmented. 1892. Price 6d. Guides to Museums and North Gallery in one volume, cloth boards. Price 1s. 9d. Hand-list of trees and shrubs grown in Arboretum. Part I.: Polypetalæ. 1894. Price 8d. Hand-list of Ferns and Fern allies cultivated in the Royal Gardens. 1895. Price 6d.

— **TENTH NATIONAL CO-OPERATIVE FLOWER SHOW.**—The schedule of this show, just issued, repeats the offer of about 800 prizes, including £300 in cash, many bronze, silver, and gold medals, special awards and consolation chances. Most of the prizes are, as usual, offered for the produce of workmen's gardens and labourers' allotments, each section of the kingdom having separate offers. The Council of the Agricultural and Horticultural Association seeks this year to enlist art students in the improvement of town gardens by offering prizes of £10 for designs of the "Workman's Garden of Taste," contrasted with the "Workman's Garden Run to Waste." The competition designs are to be exhibited at the Crystal Palace on the 23rd and 24th August, when the show takes place in conjunction with the Great National Co-operative Festival. Schedules of the show can be obtained without charge from Edwd. Owen Greening, the Hon. Sec., 3, Agar Street, Strand, W.C.

— **FRUIT FROM THE ANTIPODES.**—The "Oceania" arrived on the 18th instant, bringing the following fruits:—Four boxes from Sydney, 9247 from Hobart, 894 from Melbourne, and 130 from Adelaide—or a total of 10,275 boxes of Apples.

— **DEATH OF DR. H. F. C. CLEGHORN.**—The death is announced of Dr. H. F. C. Cleghorn, well known for his work in connection with the organisation and development of the Forest Department of India. He was for some years President of the Royal Scottish Arboricultural Society, and examiner in forestry to the Highland Society. He also took a leading part in the founding of the forestry lectureship in the University of Edinburgh.

— **FRUIT IN KENT.**—The prospects of the Raspberry crop in Kentish grounds are this year, says a local contemporary, very poor. The severe frosts of the past winter seem to have affected the canes a great deal, and they are now bursting very poorly. Cobnut trees are generally looking very well, and the show for fruit is a capital one. With regard to Plums, reports state that it is mostly trees of the Dauphin variety which are showing very patchy for blossom.

— **FINE FRUIT PROSPECTS ON THE CONTINENT.**—The orchards in the districts round Paris now present a mass of bloom such as seldom has been witnessed. Pear, Cherry, and Apple trees are alike loaded with flowers. The season is unusually late, but there is every prospect of a splendid crop, unless indeed there is any frost. The system of protecting fruit trees from frost at the critical moment of fertilisation of the pistil by lighting fires in orchards, so that the smoke may have the same effect as a cloudy sky, is in some cases being resorted to. Gooseberries and Currants are sufficiently advanced to render an abundant crop almost a certainty.

— **A GOOD WHITE COLUMBINE.**—Seen in a large number of strong plants carrying fine heads of bloom a fine pure white Columbine of the garden hybrids is a telling feature beside a garden walk at Woodhatch, Reigate. The flowers have longer spurs than are usually found on the common strain, and indeed it should not be difficult, by careful selection and intercrossing, to develop from it a pure white long-spurred form, after the style of chrysantha. Columbines are very elegant as found in true species, or even in many of the numerous hybrids that have come from intercrossing *A. chrysantha* with *A. cœrulea* or *Skinneri*, but none of these have yet given us a pure white form. The one at Woodhatch therefore merits wide cultivation.—A. D.

— **STEPHANOTIS AND RIPENED WOOD.**—If you think appropriate and likely to produce thoughtful consideration I should like to refer to the controversy that was under discussion in the columns of the *Journal of Horticulture* last autumn, on the question of "Ripened Wood." In the issue of November 15th, 1894, page 444, "A Sceptic" states that a correspondent "makes a remarkably bad shot considering that *Stephanotis floribunda* blooms on the young growth." True it does, but it also blooms on the old growth if well ripened. I am sending you a length of 1894 autumn growth with four fully expanded trusses on it, with young growth from the same showing other trusses.—F. W. B. [The examples were as stated. They were clean and healthy, but not novel. It is common enough to find *Stephanotis* flowers on growths of the previous year, and sometimes at nearly every joint.]

— **THE EFFECTS OF THE WINTER.**—In one important respect horticulture this spring is, says the "Derby Mercury," suffering somewhat severely from the severe winter, the ravages of snails and similar ground insects being more than ordinarily destructive. The reason is that the lengthy frost, instead of retarding the operation of these little pests, has actually favoured them, for it has almost completely annihilated the mistletoe thrush, whilst song thrushes are nearly as scarce. These birds in early spring—and, indeed, all through the winter in open weather—feed on numbers of snails and their eggs. Early Peas, it is said, have suffered greatly by the small white snails, and in many gardens even the Asparagus heads are taken before they can fairly break through the ground. The robin, too, though a hardy little bird, has also considerably diminished in numbers, and other indigenous insectivorous birds have suffered to an equal degree. It is consequently to be hoped that the present warm weather will continue, and that an abnormal number of migratory birds—most of which are insectivorous—will assist to make up the deficiency. More rain is at present very much needed, the ground having been considerably dried by winds. The fruit blossom is setting well, and if severe frost keeps off the season will be one of the finest for fruit we have enjoyed for some time.

— THE ANNUAL SHOW OF THE HEREFORDSHIRE FRUIT AND CHRYSANTHEMUM SOCIETY is fixed for 5th and 6th November.

— NARCISSUS BIFLORUS.—This is worthy of a place in the wild garden or in the herbaceous border if only to prolong the display of this section of bulbs. The blooms are borne in pairs on stout stalks, dull white in colour, and fragrant.

— WE are requested to announce that Mr. J. Williams, late gardener at Penwortham Priory, Preston, and Brooklands, Garstang, has commenced business at Bowgreave, Garstang, as seedsman and florist.

— RICHMOND HORTICULTURAL SHOW.—The schedule of the annual show of this Society, to be held in the Old Deer Park, Richmond, on Wednesday, June 26th, is just to hand, and contains particulars of several classes, in which excellent prizes are offered. We hope the exhibition will be as great a success as in previous years, and as the good management of it so thoroughly deserves. Anyone desiring information should write to Edwin Pragnell, Esq., London and County Bank, Richmond.

— THE GOLDEN-CRESTED WREN.—Though the smallest of British birds this is a great friend to both gardener and farmer, destroying as it does myriads of troublesome creature pests, which infest cultivated plants. By watching its habits at this season it may be seen busily feeding on the aphids, or green fly, which is one of the most troublesome of insects. By looking in the right place the nest of the golden-crested wren will be found in some Honeysuckle or such like bush.—B.

— DAPHNE CNEORUM.—Always an uncertain little evergreen here, says the "Garden and Forest," it seems to have come through the winter unusually well, and is now covered with its fragrant pink blossoms, and there is nothing better than this trailing shrub for rock-work. Flowering at the same time, but a good deal more hardy and trustworthy, are the half-shrubby perennial Candytufts. The flowers of these Candytufts are white as snow, and since the plants resemble the Daphne in habit the two make admirable companions.

— THE VITALITY OF SEEDS.—I was interested in the article, page 436, on the vitality of seeds. It appears to me the vitality of many seeds is destroyed by storing, where at certain seasons they absorb moisture from the atmosphere or the receptacle they are stored in. Once seeds begin to germinate and are checked they make no further progress, while at the early stages of germination they are easily killed. In the spring of 1894 I took soil from a depth of 4 feet from which several plants sprung, one a Lathyrus or Pea, a new kind to me, and I have observed Charlock spring from material many fathoms deep.—W. T.

— RESTORING THE INTERIOR OF A TREE.—A process of restoration has been carried out in the interior of the famous "Rollo's Oak," which is to be seen within an easy distance of Rouen, France. It is so old that it has completely lost its inside, and was liable to collapse at any moment. It has now been relieved of this liability. An arboricultural genius has, according to a contemporary, fitted it with a solid new inside of masonry. The masonry is made to follow and fit every turn and twist, and gnarl of the patient; and there is the veteran, solid as a rock again. Then the fissures and cracks on his exterior have been neatly filled up with cement, and the cement has been artistically coloured, so that you would hardly know it from the natural bark. It is expected and believed that the tree will not know the difference either, and take to flourishing again as it did a few centuries ago.

— SOME FEATURES OF PLANT LIFE.—Professor T. Johnson delivered a lecture on "Some Features of Plant Life," in the Royal Dublin Society's Buildings, Kildare Street, recently. There was a very good attendance, and the lecture, which was adapted to a juvenile auditory, was closely followed by those present. The lecturer at first dealt with the main groups of flowering plants. He then described the Bean or Flax plant, and the Oak, as illustrations of dicotyledons. The structure of the stem was minutely referred to, after which the arrangement, nature, and functions of the veins or vascular bundles were dwelt on. The other portions of the lecturer's discourse were concerned with the tip or growing point of stem, buds, or tree trunk, and its mode of formation, the root system and its function; the food of a plant; the "stringiness" of some roots, and the "bleeding" of the Dandelion root. The lecture was listened to with great interest, and its different points were fully appreciated.

— By a printer's error, the address of Mr. G. May, who showed Uriah Pike Carnations at the Temple show, was given in our report as Upper Edmonton instead of Upper Teddington.

— MESSRS. B. S. WILLIAMS & SON write:—"We have much pleasure in informing you that the Lord Steward has appointed us nurserymen and seedsmen to Her Majesty the Queen. The warrant conferring the appointment is dated 8th of May, 1895."

— HORTICULTURAL BUILDINGS.—Mr. C. Cox, Tunbridge Wells, has favoured us with handsome reproductions from photographs of the structures he builds, and which clearly depict lightness and elegance with substance and utility. All forms of glass houses are represented, from the small frame to the ornate conservatory. Amateurs are not forgotten, as several "tenants' fixtures" are portrayed, and amongst which "The Hercules" appears everything desirable.

— WISTARIA FLORIBUNDA.—In spite of many new additions to the floral world, we have no creeper more beautiful at this period of the year than Wistaria floribunda. When recently passing a cottage in a London suburb I was struck to see the walls covered with large clusters of its purple coloured blooms, and could not help thinking how many bare walls might be made beautiful if covered by this old but charming creeper. Considering the ease with which it may be propagated by layering the long shoots, it is somewhat surprising that it is not grown to a greater extent.—G.

— PRIMULA SIEBOLDI PLUTO.—Amidst the wealth of hardy flowers and plants shown at the Temple few kinds more readily arrested the attention than did a group of this beautiful hardy Primula blooming profusely in small pots, and exhibited by Messrs. Barr & Son. The flowers were of good size, partially lacinated, a very desirable feature in these flowers, and of a rich reddish magenta hue. How effective would clumps of such a hardy Primula as this is be in 6-inch pots in a greenhouse if well grown! the colour is uncommon and the effect charming. Primula Sieboldi, to have it in good form, should have the root crowns divided every year, the best selected and potted, whilst the weaker may be grown in pans to make strong crowns for the following season.—D.

— FATAL VIOLETS.—A well-known botanist says the root of the fragrant Violet is so poisonous that a very little of it causes nausea, interrupted heart action, difficulty of breathing, and other organic complications, which may result in serious illness. In this connection it is significant that an intimate relation has been discovered between the strong perfume of the fragrant Violet and the venomous qualities of its root, for the root of the scentless, or Dog Violet, is not venomous. More recently, cases of heart failure and defective circulation have been traced to the influence of Violet perfume. Since the fragrant Violet and its extracted perfumes are becoming all the vogue, it might be well, in view of these sinister reports concerning them, to consider the propriety of their indiscriminate and lavish enjoyment, particularly as they seem liable to injuriously affect not only those who use them, but also susceptible persons who may be in their immediate neighbourhood.

— NYMPHÆA LAYDEKERI ROSEA.—This is one of the best of the small-flowering Water Lilies for general use either as an ornamental plant or for cut flowers. While it grows as freely as any of the other kinds, it has baffled all attempts at propagation, so far as known. The plants keep growing from the same crown, forming a thick succulent stem, the lower part of which is continually decaying as the top makes new growths. I have tried to increase it in various ways, but never have succeeded in even starting a lateral growth, and the worst of it is, the plant usually dies if disturbed too much. I have killed four plants already, and am as far from a solution of the problem as ever. Several other people have tried to propagate it, with like results. It sometimes produces seeds, but they do not come true. I am inclined to believe that the best way to raise it is to cross-fertilise the two parents every time seed is wanted, and thereby renew it in the same manner in which it was originally produced. Its parents are said to be the Chinese Nymphæa pygmæa, fertilised with pollen from the pink variety of N. alba. I am the more inclined to believe these to be its parents, because for want of the flowers of the last-named kind, I have tried pollen of a dark form of N. odorata rosea on flowers of N. pygmæa with successful results. The flowers of this hybrid are nearly of the same colour as those of N. Laydekeri rosea; there are more petals to the flowers and the shape is more star-like.—G. W. OLIVER (in "Garden and Forest.")

— TWO ACRES OF CABBAGES at Pensham were sold by auction the other day at Worcester, the price obtained being at the rate of £38 per acre.

— WE learn that Mr. George Murray has been appointed Keeper of Botany in the British Museum, in succession to Mr. Carruthers, who retires on superannuation.

— BIGNONIA CHIRERE.—For a cool conservatory having a lofty roof no climber is better adapted for beautifying that part of the house than this Bignonia. Allowed to hang downwards, the current season's shoots produce a fine effect when freely studded with the orange red, tube like blossoms. Unless the branches are well matured the previous autumn, and the current season's shoots pinched a joint or two beyond the cyme-like flower trusses, a full crop of blossoms cannot be expected. Abundance of moisture at the root is important.—E. M.

— IRIS RUBRO-MARGINATA.—The flowering season of the rhizomatous Irises commences in April with the flowering of this little Central Asia Minor Iris. *I. rubro-marginata* is allied to *I. pumila*, which is very familiar in gardens as a dwarf border plant, usually flowering in May. The leaves of this species are 2 to 4 inches high, usually margined with red. The rhizomes are short, and short-creeping. The flowers are small, of beautiful compact form, with large standards and of a peculiar vinous colour, with metallic reflections. They are borne in profusion, and the plants at flowering time are quietly, rather than strikingly, handsome.—A. C.

— SINGLE-FLOWERED PÆONIES.—Were it not that the blooms have so fleeting an existence they would run their double-flowered compeers a hard chase for popularity in a decorative point of view. Many of them are very showy, flowering more abundantly, and are less tall in their growth as a rule than the double sorts. These single-flowering Pæonies make a bright display in the herbaceous borders during the month of May, and take less time to establish than do the double-flowered varieties. *Officinalis splendens* (brilliant purple) and *tenuifolia* (brilliant crimson), with another variety of a pleasing pink colour, form a trio well worthy of attention by anyone interested in hardy flowers.—M.

— THE ABSENCE OF SLUGS.—Here with me, and in a walled-in town garden, a conspicuous feature is at present an almost entire absence of slugs. For six weeks we have had in the South of Ireland little or no rain. This may be one of the causes, but I attribute the chief cause to the severe winter, and chiefly the heavy snowfall. Great cold they avoid by burying themselves in the soil; but snow and snow water they cannot escape, as it trickles and percolates after them, and close observers say kills them in myriads much more than great cold. The crops look exceedingly well notwithstanding the persistent drought, which I attribute in a great degree to the moisture remaining in the soil after the afore-mentioned heavy fall of snow.—W. J. MURPHY, *Clonmel*.

— VEITCH'S CLIMBING FRENCH BEAN.—This Bean should prove an acquisition for growing early in the year in vacant spaces in houses where it can have room to extend. Having some spare room in a late Peach house I decided to give it a trial. The seeds were placed in 10-inch pots early in March, four and five plants being finally retained. They were grown steadily, and when sturdy enough removed to the house in question, in which place abundance of ventilation is given at all favourable times. The plants have simply had ordinary attention, and are now turning in a very serviceable crop of Beans, a sample of which I forward with these lines for your inspection.—J. J. CRAVEN, *Allerton, Liverpool*. [The sample of Beans sent was an excellent one, and proves the truth of our correspondent's remarks.]

— THE MYRTLE OR PERIWINKLE.—In connection with the subject of plants that will do well in deep shade, it may be mentioned that few things are better for this purpose than the dwarf Periwinkle, *Vinca minor*. No matter how deep the shade, or how dry the earth may be under trees, this form of Periwinkle does admirably. It is found under the deep shade of Pine forests in the Old World. It is frequently used in America as a covering for graves. It then goes by the name of Myrtle, although very different from the true Myrtle of the poets. There are four marked varieties in cultivation; one is the ordinary blue, another pink, a pure white variety, and a double form of the pink. The flowers come up in early spring, immediately after which the old leaves die away and a new set of leaves take their place. In many respects there is not a more useful plant in the list used by lovers of gardening.—("Meehans' Monthly.")

— HORTICULTURE will be fully represented at the Paris Exhibition of 1896, and will be located on the banks of the Seine, between the Alma and Invalides bridges.

— THE USES OF EARTH-WORMS.—A contemporary says: "A number of years ago a piece of arable land on the sea border of Lincolnshire lost its fertility in consequence of the destruction of all its earth-worms by the breaking in of the sea, but regained its fertility in consequence of becoming again over-run with earth-worms, after the effects of the sea burst had ceased."

— RIBES AUREUM.—This plant, which is found in many old gardens, has a rather straggling habit, but it is among the earliest shrubs to show its flowers, and these are of a singularly clear yellow colour. The great value of this plant, however, lies in the delicious fragrance of its flowers. No other shrub at this season has any odour at once so pleasing and so penetrating, and it is well worth planting for this quality alone.

— AMELANCHIER FLORIDA.—This is a variety of Canadian Grape Pear, *A. canadensis*, flowering fully a month later than the type. It is perhaps less seen than this or the more showy Snowy Mespilus, although it deserves far more attention than it now receives. Cultivated as a standard by grafting it on the common Hawthorn or Quick is perhaps the way most suitable for displaying its attractiveness. If it can be associated with evergreen subjects, especially underneath, a fine effect is produced by half a dozen trees. The pure white blossoms thickly set in a luxuriant mass of green of its own foliage appear especially pure in colour.—E.

— BAPTISIA TINCTORIA.—For medicines *Baptisia tinctoria* has been found very useful. All medical writers, says "Meehans' Monthly," from Rafinesque down, have much to say about it in this connection. Rafinesque, however, gives in a few words the substance of most that has since been said of it: "It is a valuable remedy for all sorts of ulcers; must be used externally as a wash or fomentation, or in poultices with lard or cream." "It is one of the most powerful antiseptics in putrid disorders." "It stops gangrene, and is useful in putrid and typhus fevers." Griffith says, "A decoction is made by steeping an ounce of the root in a pint of boiling water."

APPLES AND STOCKS.

THE closing paragraph of your able and interesting leader (page 419) makes a brief allusion to this subject, in which I heartily agree. As you say, some persons attach much importance to the stock on which the trees are growing, and really think that on this the whole secret of success hinges. This idea I do not concur in, because in some gardens excellent and equal results accrue from trees worked on three kinds of stocks—namely, the Paradise, seedling or free stocks, and, thirdly, the Crab. When all those named give equal results under exactly similar conditions of site, soil, and management, it seems idle to pin one's faith to any one of the three named.

I am acquainted with persons who say the Paradise stock is the best, while I might equally uphold trees established on seedling stocks. The latter are really the result of sowing the seed or "pips" from the cider mills. Some cultivators say trees grafted or budded on the latter do not come quickly into bearing. This I stoutly contradict, as I know from experience trees of various ages, from one year to ten years, will fruit the second year after planting, and many of them the first year if it were desired. This, I hold is a good argument in favour of seedling stocks from the cider mills. Take, again, the Crab as an illustration. Even standard-trained trees will give fruit the first year after planting. This is really much too soon to be desirable for the future and early establishment of full sized trees.

When trees are favourably started into growth their future cropping and growing propensities are largely governed by the method of management adopted. It is useless pruning hard every year trees that make vigorous shoots if the roots are not served in a similar fashion. This is a fact that needs little emphasising to practical men, but those who have not the benefit of experience find it hard to realise this truism.

I am watching at the present time an experiment that is being tried by a cottager on the Swanmore estate on the subject of stocks for Apple trees. From many sources he collected the seeds of Apples during the winter of 1892, both English and foreign being included. The seeds were sown out of doors; the trees grew rapidly, many of them making 4 feet or more of growth last year. Last month I grafted seventy of these stocks with various kinds of Apples, and with apparently good results, not a single graft having failed to grow. With a view of further testing the experiment I purpose budding an equal number during the coming season. The behaviour of the several kinds of Apples as stocks will no doubt prove interesting. Many of them at the present juncture appear all that could be desired as far as growth is concerned.—E. MOLYNEUX.

GROS COLMAN GRAPE.

No Grape that I know of can be so much improved in flavour and general quality as Gros Colman. It really needs a high temperature to develop its best qualities, and this must of course be combined with a judicious amount of air. When this treatment is given to Gros Colman it is vastly improved. Under cool conditions you may secure a good colour and heavy bloom, but the edible conditions of the fruit are much inferior.

Gros Colman, when well grown, is a most useful and handsome Grape, possessing sufficient quality to make it an acceptable fruit on the dessert table. Noble in appearance, firm in flesh, and not wanting in flavour, it is a Grape worthy of the attention of all growers and consumers. Time was when Lady Downe's fetched a high price in the winter and spring; those days are gone, never to return. The bolder appearance of the Gros Colman has entirely put the Lady Downe's in the background, though the latter is most pleasant to eat when hung for a month or more after becoming thoroughly black.

One thing that greatly enhances the value of Gros Colman as a Grape for market growers is the comparative ease with which it can be thinned. Compared to the thinning of Black Alicante or Lady Downe's the thinning of Gros Colman is a pleasure—if only one thins them enough. When Colman Vines are in full vigour the amount of thinning the bunches require is wonderful. When one thinks that berries $4\frac{1}{2}$ inches and even more in circumference can be had when the Vines are in prime order, the berries must be wide apart when thinned. The inexperienced thinner is often much deceived in this matter, as his mind's eye cannot picture the enormous berries that are to develop. I speak, of course, of Vines in the best possible condition.

Taken all in all Gros Colman is well worthy of the best culture that can be bestowed on it, as it is a most satisfactory Grape in many ways. Sometimes it happens, during a very sunny, hot summer, that the Colman is better for a very slight shade. A little whiting and skim milk squirted on the glass with a syringe has been found useful for this purpose. It prevents the foliage suffering and helps to keep down spider. For a Grape with a robust habit Gros Colman is—like Muscat of Alexandria—peculiarly subject to the attacks of red spider if not carefully watched and attended to.

Gros Colman hangs well on the Vine, but our experience of it as a Grape for keeping in bottles has not been favourable. It requires a long time to colour and ripen as a rule, and has a strange habit of colouring even as late as Christmas. All things considered, this Grape is deserving of the position it has acquired as a market variety.

The importance of an abundant supply of fresh fruits and vegetables is every year becoming more evident, and there can be no doubt that an ample supply of well-ripened Grapes is most important for the public health. Grapes are not only refreshing and sustaining, but most truly medicinal, and are calculated to assist very much in maintaining a generally good condition of health. Their value is vastly enhanced when high culture has been applied to them, and the more this is recognised the better for all concerned.—JOHN THOMSON, *Clovenfords*.



MILTONIA BLEUIANA VIRGINALIS.

AMONGST the many superb Orchids staged at the Temple show none was more beautiful or attracted more attention than *Miltonia Bleuiana virginalis*, sent from Belgium by Mons. Jules Hye. The woodcut (fig. 83) will convey some idea of its quality, the single bloom being almost exactly the natural size. The colour is a pure white, the base of each petal being flushed with rosy purple, while the lip has a blotch of rosy buff. The first-class certificate awarded was thoroughly deserved.

ORCHIDS AT WOODHATCH, REIGATE.

ALTHOUGH there were such wonderful collections of Orchids at the Temple show there were numbers of others unrepresented, and amongst these the fine one which Mr. Haywood has at Reigate merits inclusion. Probably not so representative as many other collections in certain respects, because here it seems to be more desirable to have certain species or families in big groups,

hence we find houses devoted respectively to *Miltonias*, *Phalænopsis*, *Odontoglossums*, *Cypripediums*, *Masdevallias*, *Vandas*, *Dendrobiums*, *Cattleyas*, and *Lælias*, of each of which sections there is an almost immense number, and in every case all are in the most admirable condition.

Houses and Orchids alike are extremely clean, and the latter are most healthy and robust. A rare form is *Miltonia Daisy Haywood*, one of the finest whites there is, and of great beauty. *Phalænopsis grandiflora* is well represented by several grand spikes. A noble and most effective Orchid. There are many very fine varieties amongst *Cypripediums*, such as *Lawrenceanum*, *Rothschildianum*, *caudatum Wallasi*, with very long appendages; *Victoria Marie*, and beautiful *bellatulum*s.

In many respects the bulk of the collection is past blooming, but in such variety something interesting may always be found. Mr. Salter mentioned that he had during the long spell of hard frost in the winter a very anxious time, as it was most difficult to maintain anything like a suitable temperature and keep the houses from becoming thickly coated with ice.—D.

ACINETA HUMBOLDTI.

THIS singular and pretty species with its pendant scapes of purple spotted flowers is very attractive while it lasts, but the evanescent character of its flowers is a great fault. Like all the genus this species may be grown in wire baskets suspended, but to leave them, as is too often done, in one position all through the year with very scant attention is to court failure.

I find that *Acinetas* enjoy a very high temperature during the growing season, and in order to keep the foliage in good condition, and red spider and other insects in check, the syringe must be constantly plied about the plants, as the atmosphere is frequently drier close under the roof than in the body of the house. The roots, too, if in a rough open compost, delight in copious supplies of moisture until well on in the autumn. A frequent mistake made with pseudo-bulbous Orchids is diminishing the water supply too soon, in fact just as the roots are actively searching for it at the time of finishing up the pseudo-bulbs. The species in question is almost aquatic in its needs from the time the growth is well on the move until about the beginning of October, when the supply must be diminished, the temperature also being lowered. In the winter very little will suffice if the atmosphere is fairly moist, and a minimum temperature of 50° will be found suitable.

Good peat fibre, loam, and sphagnum moss in equal proportions, with a good sprinkling of rough nodules of charcoal, will be found a suitable compost. *Acinetas* dislike frequent disturbance at the roots, therefore the drainage must have very careful attention, some large pieces of charcoal being first laid in the bottom to insure the safe passage of any spikes that may be pushed down through the compost. If fairly wide baskets are used the plants may be kept in good health for a number of years by removing a little of the top compost yearly and substituting fresh. It is a native of Venezuela, and produces its flowers freely when well established from the base of the robust-looking pseudo-bulbs. Its flowering season is during March and April, and the blooms usually last about ten days only.—H. R. R.

ORCHIDS AT CHELSEA.

THE famous nursery of Mr. William Bull is at the present time more than usually gay, owing to the fact that the annual exhibition of Orchids in bloom is now open. The display this year is quite equal to any of its predecessors, and the view on entering the large span-roofed house which is used for the above purpose is one of exceptional beauty. The name of Bull is synonymous with that of new and rare plants, so that one expects to find something out of the ordinary when paying a visit to this establishment. In this respect no one need feel disappointed, as amid the large army of flowers there are many which can only be seen in very choice collections. The plants are tastefully arranged along the centre and side stages of the house, and form a picture of gorgeous beauty that would be difficult to excel.

The most striking in this maze of flower are the *Cattleyas*, *Lælias*, and many well-furnished plants of *Odontoglossums vexillarium* and *citrosimum*. Amongst the former was noted a fine specimen of *Cattleya Mossiæ fimbriata*, with flowers of most pleasing form and very sweetly scented, while scarcely less beautiful is a good example of *C. Mossiæ Lawrenceana*. A feature, however, amongst the *Cattleyas* is the many magnificent specimens of the different forms of *C. Mendeli*, giving a good idea of the variety that is obtained in this charming flower. Time did not allow of a close inspection, but amongst many others *C. Mendeli Empress*, with its large white sepals and petals and very deep crimson lip, called forth acclamations of praise. Of an equal standard of merit is *C. Mendeli majestica* of a like colour, but with a long and delightfully fimbriated lip. Another pleasing form is that of

C. Mendeli Rex, with its large petals and sepals of the purest whiteness, and lip of a rich crimson. An exceptionally fine plant was noted in *C. Mendeli chelense*, one of the most superb in the whole group, having petals and sepals equalling in purity those of the former, with a long lip pleasingly fimbriated, and in colour of the deepest crimson.

As already mentioned, *Lælias* form a feature, and one fine plant of *purpurata* was noted carrying twenty-two large flowers. Amongst others of this charming variety *L. purpurata Victoria* is

different shade, being rosy red. Very distinct in character to the above are many well-grown plants of *O. citrosum*, and amongst these particularly worthy of mention are *O. citrosum punctatum*, a beautifully spotted form; *O. citrosum sulphureum*, with large buff-coloured petals and sepals; and *O. citrosum concolor*, which has one deep shade of pink throughout the whole flower.†

Cypripediums are well represented in the show, chiefly with small plants placed here and there in groups. Among these are *C. grande*, *C. Curtisii gigantea*, *C. Lawrenceanum superbum*, and



FIG. 83.—MILTONIA BLEUIANA VIRGINALIS.

very conspicuous. This is a magnificent form, bearing large substantial flowers with petals and sepals of the purest white and lip of very deep crimson fading into the throat, which is of a bright canary yellow prettily striped. Another fine plant is that of *L. purpurata rosea* with several spikes carrying six blooms of fine character, and shaded with rose throughout. Not so striking as these, but still very pretty, are *L. purpurata Russelliana* and *L. purpurata Bella*, a form of much lighter shade.

A large number of well-flowered plants of *Odontoglossum vexillarium* adds much to the beauty of the show, and amongst these *O. vexillarium albescentis* is particularly effective with its fine white flowers of extraordinary size slightly shaded with crimson. *O. vexillarium rubrum superbum* bears excellent flowers of a much

exceptionally fine forms of *C. niveum majus*. *Cymbidium*s are likewise conspicuous, amongst others being a fine specimen of the rare variety *Cymbidium concolor*, together with many handsome spikes of *C. Lowianum*. Several well flowered *Oncidium*s claimed attention, amongst others being *O. macranthum*, *O. Marshallianum*, *O. pulvinatum*, with bright blooms of the pretty *O. Kramerianum*, or the Butterfly Orchid.

Mention must be made of the rare and exceedingly pretty little *Phaius bicolor*, with its chocolate coloured sepals and petals and lip of delicate purple. *Masdevallias* were also noted, amongst others being the pretty though miniature form of *M. Schroderiana*, together with *Comet*, one of the brightest flowered of its class. Many curiosities are also displayed, such as *Scuticaria Hadweni*, with

its chocolate coloured blooms barred with yellow, and the long drooping flowers of *Cœlogyne Dayana*. All plants in what may be termed the reserve houses, and from which the foregoing are drawn, are in excellent condition of health and throwing numberless flowers, by which the exhibition may be kept up for a considerable time.—G. H. H.

EXPRESS GRAPE GROWING.

YOUR correspondent, "Market Grower," in his letter on page 225 (May 16th) appears rather sceptical about the result of these crops of Grapes which he has been reading of lately in the Journal. He points out what he considers a most significant omission—viz, "the price these Grapes realised per pound." He also states that it is not enough to say they carried so-and-so, and finished well, when opinions differ so much as to what is a good finish in a house of Grapes. This certainly is a most significant statement. I have long been under the impression that among practical Grape growers, at least, the term "finished" was thoroughly understood, being a very comprehensive term, and required no further explanation or definition. When I hear one say the Grapes were good and well finished, I at once understand them to be at least medium sized, compact bunches (not necessarily large), berries good and well coloured, and of good flavour whatever the variety may be.

If I were to give "Market Grower" the prices he asks for he may again say it is not enough to say they realised so and so, or that the crop was so and so. But as photography cannot be accused of exaggeration, and may be trusted to convey the truth so far as the weight of crop is concerned at any rate, I shall be pleased to forward a photograph of the Gros Colman house I referred to on the 9th inst. in the Journal if "Market Grower" will kindly communicate his name and address to me. The photograph represents the entire crop of 1891, which was cut in February, 1892. The house as described by me is 100 feet in length by 24 feet in width, and 18 feet rafters planted with eighty-two Gros Colman Vines, 2 feet 4 inches apart. Each Vine carried twenty-two to twenty-three bunches of first-class, well-finished Grapes, and averaged 3s. 4d. per lb. We began selling at 3s.; after a few days we made 3s. 6d. The house was cleared in a fortnight. During the eight years referred to in my letter on the 9th inst., page 408, *Journal of Horticulture*, the average price from this house during that period was 3s. 6d. The first four years, from 1887 to 1890, the crop averaged 4s. 6d. per lb., and the last four years, from 1891 to 1894, 2s. 6d. per lb. The highest price realised during the first four years was 7s. 6d. per lb.; but great changes have taken place since then in the price of Grapes. The prices given are, of course, wholesale market prices, but I do not think prices prove much, as "Market Grower" may possibly have discovered that prices are guided by supply and demand, and also the period of the year the Grapes are sold. I have frequently sold Grapes at 1s. 9d. and 2s. per lb. that would have made nearly double that amount three months later.

"Market Grower" gives a sad account of a house of Gros Colman Grapes he saw last year. The house was 300 feet in length and carried 2700 bunches, which, he states, was the heaviest crop he ever saw of any Grapes. "Market Grower" does not give the number of Vines in the house; but, assuming they were planted 2 feet 6 inches apart, there would be about 240 Vines in the house, which would give an average of a little over eleven bunches per Vine, averaging about 1½ lb. per bunch, on a rod 12 feet in length, which would be about 1 lb. 6 ozs. per foot run of rod. I do not think there are many who would consider such a crop a very extraordinary one. "Market Grower" also states that all the bunches were left on the Vines, many of the shoots carrying three and four bunches. It would not require many such shoots to carry eleven or twelve bunches. There surely must have been a great many barren ones. "Market Grower's" statement, in my opinion, points to thorough mismanagement throughout.

I am deeply gratified by the fact that Mr. Thomson in his letter on page 459, May 23rd, agrees with me on some points at least, but he appears rather cynical about the result of my "poor little starved Vines" as he is pleased to term them. My little Vines were by no means so good as they might have been, but not starved, as stated by Mr. Thomson. They were healthy, sturdy little canes, and were possessed of that which is of the highest importance in a young Vine for planting—viz., abundance of fine, healthy, fibrous roots. It is true they were not grown or prepared on the orthodox principle, nor planted at the appointed season. Mr. Thomson states that their Vines were prepared in the best possible way. I think this proves how wonderfully accommodating the Grape Vine is. My little Vines had no coddling before planting. The eyes were plunged in the propagating pit until rooted, when they were removed and placed on a cool border in a Tomato house, and received regular supplies of water when necessary until they were planted on the 11th or 12th of August, and by the middle of September these poor little Vines were travelling at the rate of 3 or 4 inches a day.

Surely Mr. Thomson (even if he has never tried the experiment) is not so prejudiced as to think it impossible for Vines planted in a good border in a lean-to house, and under moderately good treatment, to make as good growth as Vines would planted earlier in the season. We frequently have some of the brightest weather in the year during the autumn months, although the days are shorter. With respect to the ripening of the wood that is merely a question of time and management.

I heartily agree with Mr. Thomson that we want quality as well as quantity, and I have been exerting myself in this direction for a long

time in trying to produce the best Grapes possible, both in quantity and quality; but whether I have succeeded in doing so perhaps it is not for me to say.—W. INNES, *Derby*.

TOWN VERSUS COUNTRY GARDENING.

MY experience for a very long time had been wholly in the country, and when three or four years ago we took up house and garden in a good-sized, much-frequented country town, within easy distance of London, one knew that the conditions of gardening must be very different from those to which one had been accustomed to formerly. A good-sized raised bed facing south, protected by the back of the house from the north, a piece of rough turf or grass about 30 feet long running down to a walk about 10 feet long and 4 feet wide dividing the main garden from a little belt of Victoria Plum trees rather wider than the bed I have spoken of as being immediately beneath the windows, a walk on one side, right of the turf, a border filled only by old and decrepit evergreens on one side of the walk dividing it from a neighbour's garden, and on the other side, filled in the same fashion, but backed by a decaying wooden fence, completed the unpromising picture. And if the outside aspect was unattractive, the nature and character of the soil was discouraging in the extreme. The bulk of the ground was all but pure clay—cold, tenacious—nothing could grow; no roots could expand. Let us make an exception in favour of the bed beneath the windows, where luxuriated two great Laurel bushes, beneath whose sombre shade, with hardly a pretence of concealment, reposed every variety of disused and discarded rubbish, whole and broken, while rubble and rough stones, and broken brickbats, made up about the most disheartening field for a lover of flowers to work and cultivate that it would be possible to find.

I must not make this communication too long for your columns in case you should admit it, but as an old subscriber and sometime contributor to the Journal I should much like to send you some further notes on town gardening under difficulties, and these are greater than at first appear. Many of them might, I am convinced, be obviated, and the general advantages of having cultivated disinterested labour to assist the amateur would go far to develop a more intelligent and discriminating race of jobbing gardeners, to the great satisfaction of the employer and the unspeakable health and adornment of the garden.—A. M. B.

THE PANSY,

ITS CULTURE, AND DIFFICULTIES MET WITH BY AMATEURS.

(Prize Essay.)

IN connection with the Tamworth Pansy and Viola Show, held on Saturday last, a silver medal was offered for the best essay on the "Difficulties of Pansy Amateurs, and How to Deal with Them." After carefully reading six essays the judges awarded the medal to Mr. Robert Hannah, Atherstone, whose prize contribution is herewith published:—

There are few flowers in which the effects of cultivation are more marked than in the Pansy. In an early description of this flower, given by Loche, I find he describes it as a kind of Violet, no doubt at the time a fair and proper description, but what a description if applied to the Pansy of the present day.

EARLY CULTURE.—I have looked through several old works, and so far as I can ascertain, the first record of its actual cultivation in this country was in the year 1812, at Walton-on-Thames, by a Mr. Richardson, gardener to Lady Mary Elliott, daughter of Lord Tankerville.* Mr. Richardson appears to have brought out some of the fine qualities of the flowers, for shortly after it was noticed, and took a place amongst florists' flowers. Since then wonders in its development have been accomplished, and the Pansy of the present day has become as perfect a flower as can well be imagined.

ATTRACTIVE IN GROWING IT.—It is both attractive and artistic, and there is no flower grown that opens out so wide a field of interest and amusement to the amateur in horticulture. The question may be asked, Why? Simply because it possesses so many general advantages over most other flowers. It is most hardy. Inexpensive. Little trouble to raise from seeds or cuttings, and with fair management you may have it in bloom for fully eight months out of the twelve, and it may be grown by anyone and under almost any reasonable conditions.

Then, again, in the culture of this flower the amateur need not be very far behind the professional. It may be argued that the professional has the advantage over the amateur by his greater knowledge of its culture, and his skill in hybridising. Here I may say that the art of hybridising may be acquired in a single lesson. True, but it does not follow that plants raised from the professional's hand-crossed seed show in the long run very much better results than those raised from self-crossed seed providing that the seed is taken from a bed where only first-rate varieties are grown. There is at all times the chance of raising a specimen superior to the parent plant. That fact is really one of the things that adds so much amusement and interest in the culture of this flower. There is another thing—whatever plants you raise from seed you can depend on the blooms being at least pretty, and, as I have already said, there are at all times the chances of finding something really good amongst your seedlings.

HINTS AS TO ITS CULTURE.—In the successful culture of this flower it is only necessary to carry out a few simple rules, such as I have

worked on, generally with satisfactory results. The first rule I should like to impress on my fellow amateurs is to grow nothing but first-rate varieties. Get rid of all plants not coming up to that standard. Keep either to the "Fancy" or the "Show Pansy," in other words do not grow both, unless at the opposite ends of the garden, for satisfactory results. I certainly recommend the former. You will soon discover the varieties that are best suited to the soil of your garden, and from such plants take the best of your cuttings for the next year's display. Root them where you intend wintering them, in a cold frame in the autumn. Keep the lights off until the severe weather sets in; do not be afraid of giving the young plants abundance of air on every favourable occasion, and bring them up as hardy as possible. After a severe frost, if the snow has thawed from the glass, shade them from the sun by means of a little straw or mats over the lights until the ground has thawed. If the weather is open plant out towards the end of March. Should a cold easterly wind set in before they are properly rooted shelter each plant by means of an inverted flower pot.

PREPARING THE GROUND.—In preparing the ground for them commence if possible in the autumn, by first digging in a good dressing of leaf mould, followed by a dressing of short well-decayed cow manure. Get both well incorporated with the soil, then turn up roughly, so that the frost can get well into it. If the weather permits in the early spring give the ground a good dressing of soot, and turn over. In February follow with a dressing of salt, about quarter pound to the square yard.

IF FOR EXHIBITION.—If growing for exhibition give your plants abundance of room, strip side shoots, stake the leader, and do not allow the plants to bloom until about a fortnight or three weeks to the time you require the blooms; do not pinch a bloom off, but break it off with a slight jerk to the right, close to the stem. So much for its culture. We will now turn to a few of the difficulties that are sometimes met with by amateurs and others.

THE WIREWORM.—The first and about the greatest enemy to the Pansy is the wireworm; it is to be found in most gardens, and is too well known to need any description. Sufficient to say there are several species of them, and nearly the whole family are pests in the true sense of the word. They are the larva of the click beetle, and it is said they remain in the soil in a larva state for the space of five years. To get rid of them I recommend the following remedies:—If space and time will allow, sow the intended bed thickly with white Mustard seed early in the autumn, destroy all weeds near. This pest, it would appear, cannot eat the roots of the Mustard plant, most probably from its acidity, and no other roots being in the soil near on which they can feed, the inference is they die for want of the necessary support. Be that as it may, they disappear.

Another plan is to plunge full grown Carrots into the soil of the bed about 8 or 10 inches apart, and examine them every other day; nothing more is required than to remove the worm and replace the Carrot. This may be followed up when the plants are bedded out. It seems that the wireworm prefers Carrots to almost anything else. Another remedy that I have tried with great success is a perforated galvanised iron trap. Such traps may be obtained at a trifling cost from Mr. W. Sydenham, Tamworth. Bait them with pieces of Carrot, Potatoes, Turnips, or linseed cake. These traps are not only useful in ridding your soil of the wireworms, but numbers of other insect pests find their way into them. Occasionally watering with lime or soot water renders the roots of the plant distasteful to this foe as an article of diet.

THE LEATHER GRUB.—The presence of this pest may be too quickly seen, by finding one or more of the plants hanging dead or withering up. Examine the stem, and you will find that it has been gnawed through. At once make a careful search in the soil at and around the roots of the plant that has been attacked, the possibilities are that you will find the culprit. It is a grub of a dirty grey colour, large enough to be easily seen. Both soot and lime water are distasteful to this pest.

SLUGS.—Of these there are several varieties, but the most destructive to the plant and bloom are the small black slugs. They bury themselves during the day in the soil and under the leaves of the plant, and come out in the night time to feed.

REMEDY.—Take some fresh lime in a powdered state, put it into a coarse bag, and in the evening or early morning well dust between the plants.

LIME WATER.—Lime water can be used, and may be made by pouring water at the rate of 3 gallons to a pound of lime in lumps, as fresh from the kiln as possible. Stir well, and allow it to stand for a few days; it will then be quite clear. Use through the rose of a watering can. This should be done in the evening when the slugs are out feeding. Lime or lime water will destroy every slug it reaches. Do not be afraid to use either remedy. Probably you may spoil a bloom or so, but you will not in any way injure the plant; in fact, lime has the reverse effect.

Soot and soot water will keep them away if it does not kill them. To improve the colour of the bloom there are few things better than soot if you use it dry. Be sure that it is not too fresh.

SOOT WATER may be made as follows:—Enclose soot in a coarse bag at the rate of about 1 quart to every 3 gallons of water. Place in the bag containing the soot a brick to sink it. Allow it to stand a few days before using.

Another good and easy way is to strew a few fresh Cabbage leaves about the bed in the evening. In the morning the chances are that you will find many of these slimy pests adhering to them.

APHIDES (plant lice or blight bugs).—This numerous family are at home in almost all kinds of plants. The aphids that generally attacks

the Pansy is of a dark reddish-brown colour. Its presence may be detected by the unhealthy appearance of the foliage, or by the blooms being disfigured with spots.

REMEDY.—Syringe with a solution of softsoap and water in the evening, and the following morning before the sun is on them, with clear water or tobacco water. A solution of boiled quassia chips, or a dusting with snuff or tobacco powder, are all useful in destroying this pest. The lady bird (*Coccinella*) renders great service in destroying myriads of these troublesome pests.

SHADING AND SHELTERING.—It is an easy matter to obtain perfection in the colour of a bloom, but to retain it there just at the time it is most needed is one of the greatest difficulties a grower has to contend with. To retain any of the beauty in the bloom, the plant must be protected from the hot sunshine and heavy rain. The best modes with which I am acquainted are as under:—

Utilise your frames in hot weather, substituting a canvas awning for the lights. Another way is by having a few frames something after the clothes horse pattern, over which canvas is stretched, hinging two together on the top, thus—(fig. 84).

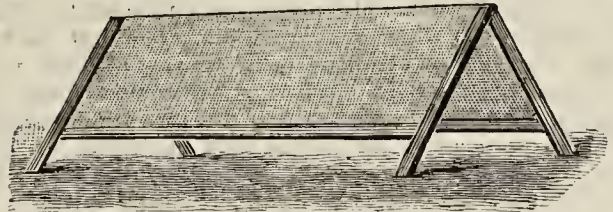


FIG. 84.

Another cheap and useful shade may be made by taking a piece of stout paper, say 20 inches by 10 inches, and cut it as shown in fig. 85, and form it into a cap, thus—(fig. 86).

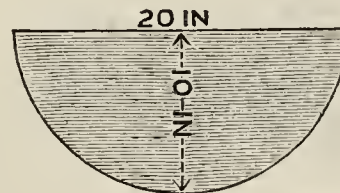


FIG. 85.

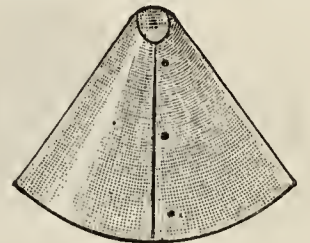


FIG. 86.

Secure the sides by means of a couple of paper fasteners, insert around the plant you intend protecting three or four slight stakes in a slanting direction to receive the cap. It will be an advantage to give the paper (before forming the cap) a coating of boiled linseed oil, to which is added a little white lead.

Another excellent method by which shade may be obtained from the midday sun, and shelter from the rough winds, is by sowing not too close to the bed on the south side from east to west a row of Sweet Peas.

[The six essays, all of which contain useful hints, will, we are informed, be published in pamphlet form at 3d. each. * The late Mr. William Dean states in his "History of the Show Pansy," in Mr. James Simkins' excellent work, that Lord Gambier collected wild Pansies in the fields, and requested his gardener, Mr. Thompson, to cultivate them in the gardens at Iwer, near Uxbridge. This was done, and improved varieties were soon obtained. Mr. Dean mentions the Walton-on-Thames case, but he believed, with Dahl, that "it was at Iwer that the improvement of the progeny of the wild Pansy was first made."]

A TEXT—POWDER.

I FEEL the sermon has been owing to these pages for some considerable time,—*non possumus!* During the last six months—times of transition,—when a man found himself blessed with two parishes, in the shape of acting overseers' and surveyors' work to do, you can doubtless give a pretty near guess how things have been sailing with him in his ship-shaping and piloting course through delectable gulfs of the modern parish meetings. However, I have nearly weathered the storms, escaped the quicksands, and I retain all my old offices in their new arrangement. I conclude with a highway survey audit and a vestry for church purposes this week, which will relieve me, I hope, to give more attention to the *Solanum tuberosum*. For three years I have been successful in warding off the Potato disease through the application of Tait and Buchanan's anti-blight powder. I pin my faith to the mystic No. 3, therefore allow me to advise those who wish to preserve their crops of the noble tuber, and its congener, the Tomato, to order at once a quantum of the powder from Messrs. Barr & Son, 112, King Street, Covent Garden, W.C., who are among your advertisers, and therefore entitled to mention here.

I have, as our worthy Editors can guarantee, kept my Potato and Tomato haulms perfectly free from disease, and consequently the tubers, by constantly dusting them with the powder from their infantile state, to allow no loopholes on the foliage for the fatal spores to take possession. I consider the dusting application far more important and convenient in its application for horticulturists than the sloppy

mixtures, which, after all, merely mean the powder submerged—a *houillabaisse*—the nasty mess. I use the Malbec bellows, which no garden should be destitute of, for greenhouses and wall work, though I can more expeditiously go over my Potato breadths by using a horse's baiting sieve, with an extra addition directly lying on the wicker-work mesh, namely, a piece of perforated zinc or coarse muslin. Fasten a forked stick under the sieve, allowing sufficient length to serve as a handle. Suspend the sieve by the aid of this handle over the Potato foliage, walk rapidly, or run if so inclined, and keep tapping the rim or side of the sieve with a short piece of stick. An impalpable even smother of the powder will become deposited on the surface of the leaves to defy all microbes, and it at once can be decided whether the bellows or the sieve is to win. At any rate, I never rode post for a patent, so there you are.

Well, our Editors, that is my text. No doubt if I live the sermon will follow, which I trust may prove effective; and so, to make a beginning, I will firstly say a paragraph for yourself—and the philosopher. It may not perhaps be an unmixed blessing that I have not been enabled to cause the bending of the printers' backs in Fleet Street till now, when this subject will be less likely to be cast aside, and be more likely to be read, as the Murphies are approaching their nervous state of greenery. Let your readers know also that they need not fear about the "sticking" properties of the anti-blight powder. It will do so without the aid of softsoap or other nostrums, which I see are theoretically, as advice, creeping in. I have undertaken the Berkshire part of the plan of experiments with manures for Potatoes for the University Extension College, Reading, Agricultural Department, so what with this and the anti-blight experiments, which I propose to adhere to, I think I shall be enabled to afford you and the philosopher a lively quarter of an hour, should you elect to come and "sit under me" by-and-by.—ROBT. FENN.



THE AMERICAN CHRYSANTHEMUM ANNUAL.

THIS work, which is far more pretentious than the N.C.S. Year Book, has just been published. It is edited by Mr. Michael Barker of the Horticultural Department, Cornell University. It is admirably printed, and contains excellent portraits of celebrated American growers of blooms and new seedlings, but the pen and ink reproductions do not do them justice. It also contains illustrated articles on diseases of Chrysanthemums. Papers on historical and cultural matters are included by writers of acknowledged ability from all parts of the world. England is represented by Mr. C. E. Shea, who discourses on the past season; by Mr. Shoemith, who tells of the cultivation of American varieties in England; and by Mr. Harman Payne, who at some length acquaints the American reader with the origin, rise, and growth of the English National Chrysanthemum Society, from the earliest times to the present. A portrait of Mr. John Thorpe appears as the frontispiece, and there are other eminent growers given, including the officers of the American N.C.S. The book is published by the Mayflower Publishing Co., Floral Park, N.Y.

THE IMPERIAL CHRYSANTHEMUM SHOW.

In the "Pall Mall Magazine" for the present month is an article entitled "The Imperial Family of Japan." This article is illustrated with portraits of the reigning family, their crests, &c., and contains a reference to the annual Chrysanthemum show in the Emperor's gardens, upon which a few remarks may be interesting to horticultural readers.

The writer in the "Pall Mall Magazine" says:—"Every autumn the Emperor gives a birthday ball, and a few days later a Chrysanthemum garden party. It was my good fortune to be present at both these gatherings in 1892. The invitations to the ball and garden party were in French, engraved on a large Chrysanthemum-bordered card."

As I happen to have a card of invitation to the Emperor's Chrysanthemum party, which was sent to me by a friend in Japan some five or six years ago, and who had been present on more than one occasion, I was rather surprised to find that the invitation was in French. Pierre Loti, the author of "Madame Chrysanthème" and "Japoneries d'Automne," gives in the latter work a very full and interesting account of this Imperial function, but his record of the ticket of invitation corresponds with the one in my possession.

The ticket is of ivory white, very thick and gilt-edged. It measures about 6 inches in length by 8 in width, and has a gilt border of Chrysanthemum foliage and flowers placed at regular intervals. Intersecting the top of the border is a large gilt figure of the Kiku-mon or Chrysanthemum crest, composed of a flattened sixteen-petalled single-flowered type. The wording of the invitation is in the Japanese character and in perpendicular columns, being read from top to bottom and from right to left.

My friend's description of the fête, which was published in the columns of a contemporary some time since, agrees substantially with

that in the "Pall Mall," so that little or no alteration in the proceedings appears to have taken place.

It is—or perhaps it would be safer to say that this fête was—one of the very few occasions on which the Empress was seen in public. The flowers are wonderful examples of cultural skill, and exhibits of huge single-stemmed plants with only one bloom on a plant, and monstrous pyramids, with 300 or 400 blooms on a plant, are on view beneath tents of purple silk supported by bamboo frames. Invitations are difficult to obtain, and the visitor's presence is accounted equivalent to presentation at Court.

Some of the continental raisers are stated to have procured seed from varieties grown in the Imperial gardens, and one variety, named M. Foukouba, who occupies the position of Director of these gardens, and which was raised from seed emanating from this source, is being put into commerce this spring.

In California there are now Japanese nurserymen engaged in the importation of native novelties into the United States, and when we consider the commercial enterprise of the inhabitants of the Land of the Rising Sun we should not be surprised to find some of them settling down in this country, which, in spite of all competition, is the Eldorado of the Chrysanthemum raiser.—C. H. P.

AN APRIL CHRYSANTHEMUM SHOW.

THE annual show of the Auckland (New Zealand) Chrysanthemum Society took place in the Choral Hall on April 18th, 19th, and 20th. The show was opened by His Excellency the Earl of Glasgow, who was accompanied by Lady Glasgow and a large party from Government House. In his opening remarks the Governor referred to the fact that the soil and climate of Auckland are specially favourable to the production of large and bright flowers, and this opinion was borne out by the testimony of one of the members of the Society, who described the leading stands in Japanese cut blooms as surpassing what he saw at the Crystal Palace and Westminster Aquarium in November last. The number of blooms staged was not so great as last year, but there was a general consensus of opinion that no such examples had previously been seen in Auckland.

One of the most attractive displays was the dozen stands of six blooms of Japanese in one variety. Mr. Handley was first with six perfect Sunflowers, Miss Carnott second with Domination, and Mr. Tibbs third with Vivand Morel. Mr. Jones also had a grand six of E. Molyneux. The greatest display of all, however, was the six stands in the amateur class for twenty-four Japanese. The growers had evidently put all they knew into this contest, and the Judges had a very difficult task to settle the merits of the lovely stands. Mr. Tibbs was first, Mr. Wells of Cambridge second; and Mr. Tibbs had a second stand highly commended. Mr. Tibbs' twenty-four were the following:—Back row: Charles Davis, Vivand Morel, International, Amos Perry, Miss D. Shea, Miss A. Harts-horn, The President, Mrs. C. H. Payne. Middle row: Middle. M. Hoste, yellow (?), Beauty of Exmouth, John Farwell, Stanstead White, Illuminator, The Queen, Harry Reay. Front row: W. Seaward, Florence Davis, Excelsior, Mrs. J. W. Tibbs (white L. B. Bird), Sunflower, L. B. Bird, Col. W. B. Smith, and Charles Shrimpton. Conspicuous among Mr. Wells' flowers were Eda Prass, Duke of York, and E. G. Hill.

The N.C.S. medals were awarded as follows:—Professional, thirty-six varieties, Japanese and incurved, T. Whiteley; twenty-four incurved, T. Whiteley; twenty-four Japanese, D. Hay & Son; N.C.S. certificate, T. Whiteley. Amateur, thirty-six Japanese, incurved, W. Handley; twenty-four incurved, T. Wells; twenty-four Japanese, J. W. Tibbs; N.C.S. certificate, T. Wells. The championship.—Dew's challenge cup and N.C.S. silver medal were won by J. W. Tibbs, with W. Handley and T. Whiteley equal for second place.

BLACK STRIPE IN TOMATOES.

I AM exceedingly obliged to Mr. Abbey for his very clear article on "Black Stripe" (page 457, May 23rd), and I hope you will convey my thanks to him, and also let me thank you for your remarks. There is one point, however, which Mr. Abbey does not touch, and it is perhaps the most important from the grower's point of view, and that is "infection." Mr. Abbey assigns its origin to diseased seeds. This was also the conclusion I was driven to, as I could find no other to account for the outbreak; but it seems also clear to me that infected plants infect sound plants. How is this done?

Every plant I have examined has had the disease all up the stem, so apparently it must have started under the soil. How has the infection been conveyed then? I have had two supplies of seeds. No. 1 came from three sources, one French and two English. The whole is infected, and I have lost quite nine out of every ten plants. No. 2 came from two sources, both English. They were brought up apart from No. 1, being much later. One house of No. 2 has had the disease very badly, caught, I believe, from the adjoining house of No. 1. This house of No. 2 is the one I referred to in my letter to you of the 16th, when I said the disease had affected one side but not the other. On the very next day (Friday) I found some affected plants on this side, however, and by Monday had turned out twenty-seven diseased ones. Since then I have not had another bad plant in this house. It really looks as if the disease took some days to cross the 15 feet of width, and then attacked every susceptible plant simultaneously. Now, how was this infection conveyed to attack the plant underground?

I have three other houses planted with No. 2 seeds, one of them of the same supply as in the affected house, and I have only had one plant diseased as yet; but in these houses a few plants of No. 1 were put out. Nearly all of these have been diseased and destroyed. If Mr. Abbey could throw any additional light on this question of infection it would be of immense value to growers. Now would these affected houses be safe to plant in next year? Does the poison start only for the seeds, or may it remain in the soil?

What Mr. Abbey writes upon "dry rot" in Potatoes is very curious. Last year all my early Potatoes had a disease which shrivelled up all the haulm. All the Potatoes were only the size of Walnuts. My foreman declared it was that late frost (on May 20th, I think) that caused this; but to me it appeared quite different to frost-bite. A new house (not for Tomatoes) was built where these Potatoes grew. Some soil was moved for the foundation. This soil may have been used in potting up the No. 1 Tomato plants. Would this have infected them? My late Potatoes last year, grown adjoining these diseased ones, were perfectly healthy.—ST. JULIEN ARABIN.

IN order to comprehend how infection of healthy Tomato plants is effected it is necessary to give a brief description of the fungus producing "black stripe." The *Macrosporium tomati* attacks the leaves, stems, and fruits extensively, spreading over their surfaces (internally) and ultimately destroys them, and the fruit is small, discoloured, or blackened and worthless. There is an absence of the rapid decay and stench so noticeable in the case of Tomato plants affected with the Potato disease fungus (*Phytophthora infestans*). At first a small greyish brown spot is visible on the leaves, stems, or fruit, and this extends in concentric rings; these become brown, and ultimately much darker or black. The hyphæ, threadlike branches of the mycelium, are brownish, somewhat curved, and septate. From these spring the conidiophores, or erect hyphæ or outgrowth bearing the conidia, which (fruits) are oblong, pointed, and divided by transverse and longitudinal septa, as shown in the illustration (fig. 87). From these the conidia fall out when fully ripe, and are distributed far and wide, giving rise to the "black stripe" on the leaves, stems, or fruits of Tomato plants on which they fall, germinate, and push the germinal tube into the internal tissue. Thus the disease spreads from plant to plant during the growing season.

It is said that the conidia from this form (*Macrosporium tomati*) may rest for the winter on the decayed leaves, stems, and fruits of Tomato plants, and on the ground. Mr. Wead of the New Hampshire College, United States of America, states positively that *M. solani*, an allied species, winters in the dead leaves and stems of Potato plants, and my experience is that *M. tomati* is only a form of that species.

Mr. Arabin's experience tends to confirm the view expressed. The spores of the fungus (*M. solani*) from the Potato plants seized on the Tomato plants at the root, for in the plant examined the disease had certainly ascended the stem. This confirms Mr. Iggulden's view, also that of the foreman, who attributed the collapse of the Potato tops to the May frosts, as these would tend to produce that condition of the haulm favourable to the development of the fungus, backed by the damp weather following, for this fungus certainly delights in damp and somewhat cold weather, and which respect it differs from Potato fungus (*Phytophthora infestans*).

Bordeaux mixture.—This is a recognised preventive of the disease, but to be effective must be applied when the plants are 6 inches high, and should be repeated at fortnightly intervals, so as to coat the growths as made with a thin film of the mixture. For reasons of easy application and less danger from use powder applications are the most desirable for use under glass. There are several such powders in the market, not advertised (as they should be) and in consequence are little known. I shall not say more about them for obvious reasons.

To prepare precipitated carbonate of copper. Dissolve separately in warm water 1 lb. of sulphate of copper, and 1½ lb. of washing soda, when dissolved mix the two solutions together well, when carbonate of copper will be precipitated, then pour off the water and dry the copper carbonate—that is, the sediment. Weigh the carbonate of copper when dry, then take 100 times its weight of air-slaked lime, quite dry and in the finest possible powder, and add the copper carbonate, mix thoroughly, passing several times through a hair or very fine wire sieve, and after mixing keep in air-tight vessels in a dry place. Use with an ordinary sulphur duster or bellows. It is most important to begin in time.

As regards disinfecting the soil, there is nothing better than quick-lime, about one-tenth mixed with the compost being sufficient, or a peck per rod in the case of borders. The lime acts promptly on any vegetable matter in the soil, such as partially decayed or strawy manure, which should not be used, either as manure or as mulching, for it forms the best nidus for the fungus, which is equally capable of existence, growth, and reproduction as a saprophyte or a parasite; indeed it produces its fruits more freely as the former than the latter, and those having it are in a great measure responsible, as it cannot possibly live where there is not organic matter, hence such substances as basic slag are far better than dressings of stable or farmyard manure, though there is little danger in that provided it be thoroughly decayed. A dry and well ventilated atmosphere is also of consequence in avoiding the disease, as it is damp and cold (relative to the subject) and organic matter that fosters the disease. Clean seeds and cleanly structures are also of the first importance in dealing with the low forms of vegetable life.

There was not anything in Mr. Arabin's specimen but plasma—no mycelial hyphæ or conidiophores. This was stated in the reply to his letter, and, of course, puzzled him, as *curl* in Potatoes and *black stripe*

in Tomatoes have the authorities, to know how the disease was infectious. I also stated that the fruits affected might or might not produce the fungus, for no one can tell what a plasma will bring forth. Sometimes nothing follows, yet the plants collapse and the fruit is worthless.

I have expressed the view that our enemy is nothing more nor less than the so-called saprophyte *Pleospora herbarum*, its conidial condition being *Macrosporium commune*, which has several forms according to climatic conditions and host. Indoors, and as a parasite, the conidiophores and conidia are long, drawn, and pointed; outdoors, and as a saprophyte, the conidiophores are very short and very blunt in the conidial part, so much so as to appear quite distinct. This *Macrosporium* is the product of the self-same mycelial hyphæ, and is produced

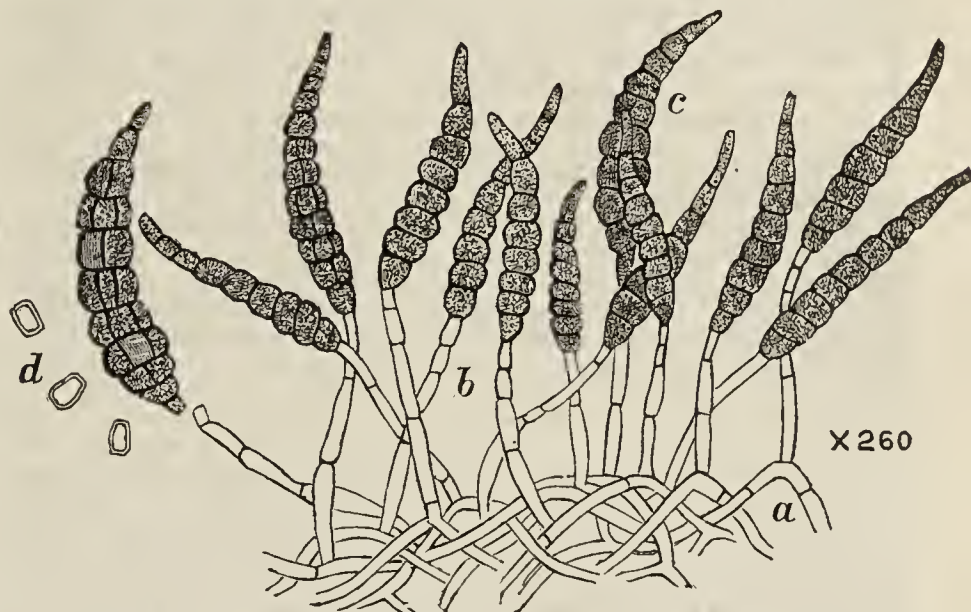


FIG. 87.—Black Stripe fungus (*Macrosporium tomati*) from Tomato plant under glass:—a, mycelial hyphæ; b, conidiophores; c, conidia; d, summer spores fallen out.

from the spore of *Pleospora herbarum*, and it seldom goes further than *curl* in Potatoes and *drooping* in Tomatoes. Occasionally, however, the *curl* is followed by the wholesale collapse of healthy Potato plant tops, and the destruction of Tomato plants and fruit by *drooping*, *stripe*, and *blotch*.

The fungus (*Macrosporium tomati*) figured is as I first saw it in 1873 at Grinkle Park, and certainly was accelerated by syringing the Peach trees, as in another house kept warmer and unsyringed there was not any disease in either the plants or fruit. Occasionally since that year I have seen the Potato top collapse disease and the Tomato rot—all



FIG. 88.—"Black Stripe" (e) and "Blotch" (f) on Tomato, caused by *Macrosporium tomati*.

the same thing—the conidial condition of *Pleospora herbarum*. *Macrosporium commune*, as a saprophyte; *M. solani* and *M. tomati* respectively as a parasite.

Strangely in 1895 I received, through the *Journal of Horticulture*, a specimen Tomato fruit with both *stripe* and *blotch* (fig. 88) from Saltburn-by-Sea (about ten miles distant from Grinkle Park), and on May 25th the outgrowths of the fungus broke through the blackened epidermis of the blotch, appearing as a greyish or white mould—the *Macrosporium solani* or *M. tomati*. The mycelium is discernible around the edge of the blotch, it growing in concentric fashion, and slightly raises the margin surrounding the destroyed cells. Keeping this fruit under daily observation, and transferring the spores to living plants, as well as decaying ones, an insight is got into the characteristics of the fungus as a parasite and as a saprophyte, in both of which it certainly originates from, and ultimately develops into *Pleospora herbarum*. Possibly, however, there are two forms of this; but whatever confusion exists botanically there is no mistaking Nature as revealed by the microscope.—G. A.

BELVOIR CASTLE.

SPRING GARDEN.

To my mind there are no flowers more beautiful than those of the spring. How rich, how fragrant is a garden filled with them! My love for spring flowers was largely fostered at Elsham House, Grantham, from 1871 to 1873, and it has unmistakeably increased as the years have gone on. I have that beautiful garden in my mind's eye at this very moment, and the spring gardening conducted by Mr. Samuel Ellis will never be effaced from my memory. Either in 1873, or the following year, Mr. Allis, now at Old Warden Park, described that garden in the *Journal of Horticulture* as a "veritable fairy scene."

Belvoir Castle stands out in the landscape as a power of its greatness and strength in the past, and can be seen for miles, while from its massive towers, and even the terraces, there are commanding views of the country, on a clear day, for thirty to forty or more miles. The view from Belvoir across that fertile stretch of country to Lincoln could not probably be surpassed. If we were to describe Belvoir in one sentence it would be "it is a grand old place," and worthy of the traditions of the noble family who inherit it.

For twenty-five years I have had a longing desire to visit the spring garden, and that desire year by year seems to have intensified. The various articles that have appeared in the *Journal* have added in no small degree to that desire. How long spring gardening has been carried out at Belvoir I cannot say, but it was in full swing at the time to which I have alluded. It is questionable if a more charming spot could be found for a spring garden in this country. It is practically in a valley, and appears to be well sheltered on every side. The greater part of the beds and flowers are arranged on the southern slope of one of the hills, with a background of forest trees. The spring garden proper comprises many acres of ground, and may be described semi-circular in shape. There is a large space at the bottom of the slope planted with many choice flowering evergreen and deciduous shrubs, while thriving Conifers tower up suitably amongst them. It is a capital finish to the higher rocky slopes that are almost covered with spring flowers. Although so well shaded, light and air, both essential to the flowering of alpine and other spring flowering plants, are not shut out in the least. The whole has been grandly conceived, and bears abundant evidence of good taste and careful thought on the part of the late Mr. Ingram, or whoever made this portion of the grounds.

Those who have never seen these slopes must not think that it is a mass of spring flowers arranged on the neat principle that one finds in some geometrical design in close proximity to a mansion. Such is not the case. The object has been to give it a natural, even rustic, and in places a semi-wild appearance. Belvoir spring garden, so it struck me, if short of one thing, it is rock, and I have been thinking if some of the bold massive rocks of Dovedale could be transplanted there the picture would be enhanced in boldness and beauty.

Such, however, cannot be the case, the labour already having been enormous. On entering these slopes, practically levelled into the hill-side, are a number of beds charming with spring flowers of various kinds, well designed and the colours beautifully blended. Then on the same side trees of many species come almost close to the circular walk. On the opposite side are other beds, well arranged, carefully sloping down the hill in terrace-like fashion, with a number of bolder beds at the base, and to all appearance on the level. On lower levels still are series of beds, geometrical in design and charming with a variety of spring flowers.

A compact form of *Arabis alpina* is freely used for white flowers; but unfortunately this plant is somewhat too early. We want a white flowering plant that will come in with *Aubrietia* and others. *Primrose Harbinger*, when a stock can be raised, will certainly replace it to a large extent; but on rocks of a bold character, where it grows and hangs down gracefully, it is hard to find a substitute. The old *Aubrietia græca* is very effective and largely used; but the darker and best of all forms, *A. Leichtlini*, is most conspicuous, and is used in several beds in masses. *Phlox amœna* is a glorious plant for the spring garden. *Primroses*, fancy and laced *Polyanthuses* abound in every conceivable shade of colour.

Wallflowers are indispensable, and the beds filled with a variety of these and edged with dwarfier plants were very effective, and the fragrance simply delightful, the plants having passed the winter well. Near these beds, and in partial shade, was a delightful bed of the late-flowering *Violet Lady Hume Campbell*, which was one mass of its large mauve coloured, highly fragrant flowers. The spring garden at Belvoir entails much labour and thought.

Many good hardy plants abound on the slopes amongst the spring flowers, and when the beds are filled with their summer occupants this part of the grounds is still gay and attractive. Two acres out of the seven in the walled-in garden are devoted to a general collection. The top portion near the main range of vineries and Peach houses being quite gay with various spring-flowering plants. *Narcissi* are represented in this part by a very large collection. *Iris concolor* and others were gay, as also were many plants too numerous to mention. Large borders had been filled with *Carnations*, and others with *Violets* for autumn, winter, and spring flowering.

It was scarcely the time to see the kitchen garden. Asparagus beds looked well; Asparagus Kale had passed the trying winter, as also had Chou de Burleigh. Large plots of spring Cabbage were ready for cutting. The wall trees looked well, with a good promise of abundant crops if the weather proved favourable. The bush and pyramidal fruit trees had been crowded, but their branches have undergone a severe thinning.

This bird's-eye view of Belvoir must be brought to a close by saying that these renowned gardens are safe in the hands of Mr. W. H. Divers, and unmistakeable signs of progress are visible. I have not the least doubt that the reputation of the gardens will be well maintained, and I shall be surprised if we do not hear more of Belvoir—after a time—in the future than we have done in the past.

My very best thanks are due to Mr. Divers for showing me all in the gardens my time would allow, and thus gratifying the wish of years. His hospitality to me—a stranger to him—will not be forgotten. What a brotherly feeling there is amongst gardeners! long may it continue.—WM. BARDNEY, *Osmaston Manor*.

REFLECTIONS.

I WONDER if many of your readers reflect as I do on Thursday evening that Friday morning's post brings the *Journal*, and that means a bit of pleasant profitable reading. I anticipate it much, and so I think does my friend, who gets it second-hand. I want to say a word about the lavishness of funeral flowers. We are rejoicing in the fact that common sense forbids the fearful display of crêpe and weepers tolerated in the days gone (not so far gone by either), but is there not a fear of the excess taking another form? To whom do the flowers give comfort? Not to the "happy dead," and the sorrow of the survivors surely cannot be much mitigated by wreaths and crosses of costly exotics. Personally, I think the flowers should go to the living.

Do not we all know decayed gentlewomen and friends of reduced means to whom life is too valuable to spend on flowers. I think of some who have been bred in the country, and now in their old age are finishing life's journey in a hot dusty street. I know two old ladies (out of the many) who for forty years lived in a pleasant country vicarage. Circumstances have driven them to a large town, and they have often told me how the sight of a box of country flowers would affect them to tears. The charm is greater if there should happen to be a flower the like of which they knew at home. Do not I know, and do not you know, Mr. Editor, how a posy even of common flowers from this remote village would touch the tenderest feelings of a heart in Fleet Street? I do not plead here for hospitals and the sick poor. Happily they are in most places well cared for. It is the members of the lower middle class who are neglected.

There is another class of people to whom a few flowers would be a great pleasure, and that is the great army of shop assistants. In most towns now these folks enjoy a half holiday, and many of them, far more than you would suspect, spend that afternoon over their scraps of garden. Here in our market town the best *Carnations* are grown by a watchmaker; splendid "riculars" by a journeyman cabinet maker; and *Begonias*, bad to beat even in London, by a signalman. Could not some pleasant, kind ladies occasionally, when their gardens are at their best, invite the humbler members of the great trading body to spend the afternoon with them? There would be benefits both given and received, to say nothing of the cultivation of a kindly spirit. I speak from experience.

There is a note, too, in last week's issue about the beauty of common flowers—or rather, I should say, inexpensive ones—for decorative purposes. On a farmhouse table I saw the other day an arrangement that struck me as being pretty. In the centre, in a large two-handled greenish yellow mug, were placed the fresh bronzy leaves of *Sycamore*, with a handful of some inexpensive *Daffodils*. At the four corners were small glass globes full of wild lavender-shaded scentless *Violet*, a *Violet* which is, to my mind, of beautiful habit. The week following *Narcissi* and *Beech* leaves occupied the centre, with *Forget-me-not* at the corners. I am writing in the May week, which is here a time of holiday and rejoicing for working lads and lasses, and the general wedding time. The bouquet of a rural bride I thought pretty the other day. Centre three pinky yellow *Tulips*, set in a crowd of *Narcissi*; a border of pink *Pelargoniums*, principally *Bride* and *Nordi*, begged from a friend's greenhouse; an edging of the pretty green *Corydalis*; and then a finish of pale and white *Lilac*. Flowers are flowers here, and we do not stick at a bit of colour, even for a bride.

Another friend (page 427) speaks of his Lettuce. I trembled for mine. A new experiment on a sunny border with no covering but snow; 130 were planted. The gaps that exist the salad bowl accounts for. So crisp, so refreshing; and the seeds also hailed from Reading, but the plants were grown, I think, farther north than the specimens that were sent to you. This may have been an advantage because of the heavier fall of snow than fell in the balmy south during a certain period early in the year.—THE MISSUS.

[A gardener in the "balmy south" basking, or rather brushing in a temperature approaching zero, swept what snow he could, and piled it in ridges over some rows of Lettuces and young Cabbages. These rows have of late given valuable produce, whereas the plants uncovered melted away.]

RYECROFT NURSERY.

THE name of Mr. H. J. Jones, of Lewisham, and the ever-popular "mums" is so synonymous, that to think of one is but to bring the other quickly to the memory; but as June is hardly the time to speak of these plants, except in a growing condition, though, indeed, they are for ever in the mind of gardeners, it was not to obtain any information of these that a recent visit was made to the nursery of this energetic florist, but rather to see another class of flowers, for which

he is no less famous—those of the beautiful, though perhaps somewhat under-estimated, fancy Pelargoniums.

After seeing Mr. Jones's creditable exhibit of these brilliant flowers at the recent Temple show, it was with the expectation of seeing something out of the ordinary that the journey was taken to Ryecroft, and in this respect we certainly were not disappointed, as the large exhibition house in which they were staged presented a mass of bloom that would be extremely difficult to excel.

Owing to their aptitude to become infested with aphides, fancy Pelargoniums are not found adorning greenhouses to the extent their beauty merits, but that they can be and are grown in first-class style entirely free from green fly may be proved by paying a visit to the collection under notice, where excellent cultivation may be easily seen in each sturdy plant. So great was the density and variety of bloom presented that it was an impossibility to give each the amount of admiration due to it, as in one the form of flower and delicacy of colouring was so exquisite that we were apt to conclude that perfection was reached, until our attention was taken by another with some particular mark of beauty peculiar to itself. Such being the case former decisions had to be reconsidered until, after some further attempts had been made at picking and choosing, we felt obliged to give it up, and be content to admire the whole *en masse*.

This was doubtless the best course to take, and in passing along many familiar varieties were recognised, while through the courtesy of Mr. Jones we were enabled to note other new and beautiful additions, for whose introduction he is in many instances responsible. Should the mode of cultivation, such as is practised at Ryecroft, become more general, we have no hesitation in suggesting that Pelargoniums will again be accorded a deservedly high position amongst greenhouse plants.

Amongst the recent additions Mrs. W. Wright is well worthy of a high position, being one of the most beautiful Pelargoniums in cultivation. When first opening the flower is of a pleasing rose shade, passing in later stages to pale blush. The blooms are well formed and slightly crisped at the edge, while the plants are robust and sturdy in habit. Of no less merit is Mrs. H. J. Jones, whose large and conspicuous flowers of blush-white blotched with crimson are particularly attractive. Eucharis carries large masses of pure white flowers, and in addition to its decorative qualities is one of the best for affording cut blooms. Mr. Jeffrey is of a colour most uncommon in Pelargoniums, being of a deep purple, while the truss is large and the habit of the plant dwarf and compact.

One of the most profuse flowering varieties in cultivation is Mr. H. J. Jones; in colour it is a bright rosy red, with a maroon crimson blotch on the upper petals. Another novelty is May Queen, of a soft salmon-rose, heavily blotched with dark crimson. Very different in colour is Agnes Cook, which is of dwarf habit, and carries a profusion of pale lilac flowers. Edward Perkins is a pleasing orange-scarlet, with a maroon blotch on the upper petals. Quite a feature in the collection was Lady Folkestone, a free-flowering variety of a charming rosy pink, with beautiful crimped edges. Very attractive also is Rose Queen, of an exquisite shade of blush pink, with upper petals blotched red.

Amongst the "Regals" were noticed as being particularly striking Bush Hill Beauty, with large flowers of a mottled rose shade; Duke of Fife, a clear lake with white margin; Lady Duff, a rich red sport from the former; Madame Thibaut alba, a charming pure white, as its name implies; Prince of Wales, a bright vermilion with light centre and large trusses; and Queen Victoria, of a somewhat similar colour, but with a dark blotch on the upper petals.

Worthy of a special note are several varieties not yet introduced—namely, Ladas, a delicate salmon pink with dark blotch in the centre; Duchess of Portland, Euclid, and Miss Alice Love. The single Zonals were only accorded a passing glance, though their merits warranted much closer attention, and a group of some 500 double Ivy-leaf Pelargoniums presented a mass of bloom, which to see meant to admire. Close attention to the hybridisation of these popular flowers has resulted in the production of many beautiful specimens, and we shall perhaps not be wrong in according Ryecroft Surprise the post of honour in this class. It has a bold vigorous habit, with blooms of a distinct shade of salmon pink clustering round the plant in great profusion. Of a different colour, though equally charming, is Flambeau, which is brilliant scarlet. Congo is very distinct, being of a light lilac shade with silvery white edge. Ryecroft Scarlet is described in the name; it bears very large flowers, and is perhaps the best of its colour. Others in the group, each with its own particular attraction, were Prince of Wales, Jersey Beauty, Jeanne d'Arc, Liberty, and La France.

Further attention was claimed by a large span-roofed house filled with single Begonias, all in excellent condition and giving ample promise of a bright display later on; but as the flowering period was only in its infancy we shall pass over these with but a few brief remarks. Like all other flowers grown in the nursery these have had their full share of attention in regard to raising new varieties, with the result that Mr. Jones is responsible for the introduction of many charming novelties.

Several already in bloom were noted as being exceptionally fine, of good substance and varied in colour; the plants gave evidence of sound cultivation, being sturdy with flower stems sufficiently stout to dispense with the customary stake.

In addition to the above there are about 150,000 seedlings raised this spring in various stages of growth, and the large space of ground set apart for exhibition was in preparation for planting.

The Chrysanthemums will be heard more about in due season, but

still their healthy appearance merits a word of approbation. Faint attempts were made to obtain some idea of the number grown, but it had to be given up, as they were to be seen everywhere and in all stages. Numbers already in their flowering pots with stems clothed with stout foliage looked everything that could be desired, whilst thousands of others in small pots and boxes were waiting their turn for removal. A large number of new seedlings are being closely watched by Mr. Jones, from which he hopes in the coming season to obtain several fresh novelties, and in this alertness he is equally matched by Mrs. Jones, who appears to understand the flowers almost as well as her better half.

It was with reluctance we left this exhibition of flowers, for so it may be justly termed, fully satisfied that this energetic florist is at any rate doing his share towards popularising, not only the Chrysanthemum, but also the Begonia, and the somewhat neglected but singularly beautiful and varied "fancy" Pelargonium.—G.



FRUIT FORCING.

Peaches and Nectarines.—*Early Houses.*—The earliest forced trees of Alexander and Early Louise Peaches, Advance and Early Rivers' Nectarines are, or nearly, cleared of the fruit. The shoots on which the fruit has been borne, if not required for the extension of the trees, must be cut away to the successional growths from the base. This will admit light freely to the foliage, and the access of water for cleansing purposes. Syringe forcibly to free the trees of red spider, and if this and scale continue troublesome the prompt application of an insecticide will be necessary to eradicate the pests. It is highly important that the foliage be kept healthy, and to prevent over-maturity or premature ripening it is necessary to keep the structure cool by ventilating to the fullest possible extent, when the weather is mild, after the fruit is gathered. The borders must be duly supplied with water, and in showery weather remove the roof lights. Keep gross laterals stopped, but avoid checking the growth by removing a large quantity of foliage at one time, as this has a tendency to hasten the ripening of the wood, and when this is the case the trees will be swelling their buds through over-development when they should be resting.

Trees of Hales' Early, A Bec, Early Alfred, Early York, Dr. Hogg, and Early Grosse Mignonne—all second early Peaches of good colour and first-class quality, with Stirling Castle, Royal George, and Dymond in the same house or in a house to themselves, which is the best, will now be ripening their fruit, and must not be syringed, though if the trees become infested with red spider a thorough syringing may be given when there is a prospect of a fine day; but with the water hanging on the fruit for some time the skin is liable to crack, even in fruits partially ripe, while those that are nearly ripe will be much deteriorated in quality; indeed, they acquire a very unpleasant musty flavour from the attacks of minute fungi. The trees must have sufficient water at the roots, but any excess at this stage has a tendency to cause splitting at the stone, especially in the case of vigorous trees.

Houses Started in January.—The trees of the very early varieties will be cleared of their fruit, or nearly so, while second early varieties will be ripening; both should be treated according to the preceding advice. The standard forcing varieties, such as Stirling Castle, Royal George, Grosse Mignonne, Dymond, and in some cases Alexandra Noblesse, with Lord Napier, Stanwick Elruge, Goldoni, and Dryden Nectarines are now advancing fast towards ripening. The leaves will have been turned aside, and the fruit raised on laths placed across the trellis with its apex to the light. This insures the fruit colouring well and ripening evenly. If the weather proves cold and wet gentle fire heat will be necessary to secure a circulation of air constantly, the temperature being maintained at 60° to 65° artificially at night, and 5° to 10° rise by day, in order to keep the fruit in steady progress. Cease syringing as soon as the fruit begins to soften or assume the ripening tint, and take care to have the trees free from red spider before the syringing ceases, or the pest will increase so rapidly as to seriously affect future prospects. See that there is no deficiency of moisture in the borders, and if necessary give a thorough supply of water, mulching with some light material, such as partially decayed manure or spent Mushroom bed refuse, about an inch thickness sufficing.

Succession Houses.—Do not hurry the trees during the stoning process, but allow time for the satisfactory completion of this exhausting and essential work, aiding the trees in effecting it by a dressing of superphosphate and potash manure. Allow a rather free extension of the laterals as an encouragement of root action, but be careful not to crowd the principal foliage, and keep insects in check by syringing twice a day. When the stoning is completed remove all the surplus fruits, and turn the others with their apexes to the light to insure their even colouring. Give thorough supplies of water, mulching the border lightly with partially decayed stable litter, and supply liquid manure liberally to weakly trees. Vigorous trees will not need more than a surface

mulching, as high feeding will only cause grossness, and must be studiously avoided. Ventilate early in the morning and close in the early part of the afternoon, with abundance of atmospheric moisture, so as to raise the heat to 80°, or 85° or 90°, and ventilate a little afterwards for the night, the temperature being allowed to fall to between 60° and 65°. This procedure must not be practised until the stoning is completed, and only when it is desired to accelerate the ripening or secure fruits of the largest size.

Late Houses.—Young shoots that are to carry next year's crop must be tied in and allowed to extend as far as space admits, taking care to avoid overcrowding. Pinch all side shoots that are not wanted for next year's fruiting or for furnishing the trees, and stop any gross shoots, so as to cause an equal distribution of the sap. In thinning leave a few more than will be required for the crop. A Peach to every square foot of trellis covered by the trees is ample for the large-fruited varieties, but the medium-sized and Nectarines may be left a little closer. Keep the foliage clean by syringing twice daily in fine weather, and always sufficiently early to allow the foliage to become dry before night. Water thoroughly when necessary, and always sufficient at a time to moisten the soil through to the drainage. A light mulch of short partially decayed manure will save watering. Keep the surface moist and supply some nourishment. Ventilate early, and increase the ventilation with the sun heat, closing early if the ripening is to be accelerated; but if the fruit is wanted late keep as cool as possible by free ventilation day and night except when frost prevails.

Young Trees.—Those in course of formation for covering their allotted space must be properly disbudded, leaving the main branches or shoots for forming them 15 to 18 inches distance apart, and the bearing wood at a similar distance along them, training the extensions their full length and pinching the side shoots not required for extending on last year's wood to two or three leaves, so as to form spurs, and to one of subsequent growth. Laterals on the current growths should be pinched at the first joint and subsequent spray as made.

Pines.—Plants of these under good management yield, as a rule, the finest fruits and the only profitable return when they show them ten to twelve months from the time the suckers were first potted, but some allowance must be made for autumn suckers, which were then potted and have to make their growth under adverse circumstances. Plants finally potted last September are now showing fruit. If any of that age are not fruiting subject them to about four to six weeks' comparative rest, lowering the heat at the roots to 75°, admitting air fully at 75° to 80°, and let the temperature fall to 75° before closing the house for the day. Little fire heat will be necessary, but it must be afforded, if necessary, to prevent the temperature falling below 60° at night. Do not allow the plants to become excessively dry, but whenever a plant needs it afford water liberally. The smaller suckers of the plants referred to potted this spring must be kept growing until the pots are filled with roots, when, if necessary, they can be subjected to the same course of treatment as advised for the larger plants, and these will afford a successional supply of fruit.

Suckers Potted in March.—The strongest of these should now be in their fruiting pots. If they are not yet potted do not tolerate farther delay, as to retain them longer in small pots is detrimental to their after growth. Let recently potted plants have a regular bottom heat of 85° to 90°, and be duly supplied with water, if needed, after potting, not giving any more until the soil becomes dry, as it is necessary to exercise more care than usual at this stage, the state of the soil of individual plants being ascertained before its application.

Routine.—Young plants are making rapid progress, and must be regularly attended to, allowing sufficient space for development, as it is inimical to sturdy plants to crowd them, especially in the early stages of their growth. Ventilate early in the day, always at 75° to 80°, to render the foliage dry before it is affected by the sun. Discontinue shading successional plants, but for fruiting ones with the crowns in close proximity to the glass a slight shade from powerful sun will be beneficial.

Cherry House.—When the crop is wholly ripe the chief consideration will be to keep the fruit fresh and prolong the season as long as possible. Shading will do so, but it is only desirable where the fruit is exposed directly to the sun owing to the limited foliage. Free ventilation must be accorded, and in hot weather a sprinkling of the surface of the border in the hottest part of the day will assist in keeping the fruit fresh. The supply of water at the roots must not be neglected, for dryness is inimical to the formation of the buds for the ensuing crop of fruit and the health of the trees.

Cucumbers.—Plants in houses that have been in bearing since the beginning of the year may be cleared out, and the house cleansed preparatory to replanting with young plants or Melons for a late crop. If, however, the old plants are fairly healthy and Cucumbers are still insufficiently supplied from pits and frames, they may be kept in bearing a time longer by removing the surface soil with a small fork, and supplying some lumpy loam, afterwards surfacing with decayed manure, giving a top-dressing of some approved fertiliser, and a good soaking of tepid water, or the fertiliser in liquid form. Thin out the old growths, and encourage young in their place. Shade from powerful sun, syringe both ways in the early morning and afternoon, and damp down before nightfall. Admit a little air at 75°, increasing with the advancing sun, keeping through the day at 85° by solar heat, and close early, so as to run up to 90°, 95°, or 100°. Employ fire heat only to prevent the temperature falling below 60° to 65° and to insure 70° to 75° by day.

Pits and Frames.—Plants in these should be ventilated from 7.30 to 8 A.M., and in the hottest part of the day a slight shade from the fierce rays of the sun will be beneficial, and keeping through the day at 85° to 90°; close at 85°, increasing 5° to 10° with sun heat. Keep them watered as required, about twice a week will be necessary in bright weather, and sprinkle on fine afternoons. Avoid overcrowding the foliage, thinning well, keeping up a succession of bearing wood, removing bad leaves, stopping one or two joints beyond the show of fruit, and avoid overcropping. If straight fruits are wanted place them in glasses or nail pieces of half-inch deal together, so as to form open ended troughs about 3 inches wide, introducing the fruit, and having the troughs slightly inclined so as not to hold water.

Strawberries in Pots.—Copious supplies of water are needed in the early stages of the fruit swelling; indeed, if the plants but once lack that essential element the plant or fruit may be so impaired as to do little good afterwards. Abundant supplies of water and nourishment at the roots are necessary to secure well swelled berries, with a somewhat moist condition of the atmosphere, therefore avoid drying currents of air, especially when cold. Water the plants two or three times a day, according to the weather, and supply liquid manure two or three times a week until the fruit commences ripening, after which give water only sufficient to prevent the foliage flagging. This, with abundance of air, improves the flavour.

Plants in Pits and Frames.—When the Melons are ripening they should be fully exposed to the sun by raising them on inverted flower pots with a piece of slate intervening, as the moisture from the bed is apt to accumulate in the pot, and rising through the hole cause the fruit laid upon it to decay at that part. Admit air freely, and water only to prevent flagging. If a second crop is desired encourage about four shoots from the base of each plant, and when the fruit is cut the old growths may be removed and young shoots substituted. These will show fruit on the first laterals, every alternate one being rubbed off to prevent crowding. If a top-dressing of fresh compost be given, supplemented with a good supply of moderately weak liquid manure at 90°, the plants will be assisted to make a vigorous second growth. A useful crop of Melons may be obtained by making up beds now of any spent material, which, with mixing and turning, will generate a gentle warmth, placing over it frames that have been used for Potatoes and bedding plants, placing in each light about a couple of barrowfuls of any strong loam mixed with some old mortar rubbish or road scrapings if deficient of grit, and pressing it down firmly. Into this, when warmed through, turn out a strong, healthy plant, pressing the soil about the roots and giving a good watering. If the weather be bright shade for a few days after planting. Seeds may yet be sown to raise plants for frames at present occupied by tender bedding plants.

THE FLOWER GARDEN.

Bedding Out.—A great deal of this is done, but much remains to be completed. June is soon enough for planting the more tender kinds of plants and flowers, such as Iresines, Coleuses, Alternantheras, Amaranthuses, and Begonias.

Tuberous Begonias.—What these should have is ample room and a fairly rich, moist root run. Planted thickly they soon overrun each other, and the beauty of the foliage is lost, while if the soil is poor and non-retentive of moisture the results will never be satisfactory. Old Mushroom bed refuse or other short manure should be freely mixed with the soil. The plants take to their fresh quarters more quickly when moved out of boxes or beds, and in any case they should be in a moist state at the roots when transplanted. If the varieties are good and also mixed they would prove most effective planted not less than one foot apart each way, with a carpeting of variegated Mesembryanthemum or other neat trailing plants, and a few Cyperuses, Dracenas, or Palms dotted among them would further add to the general effect. A mulching of either cocoa-nut fibre refuse, leaf soil, or short manure should always be given Begonias. Without it they will fail in many positions. Begonias raised too late to bed out may, later on, be planted in nursery beds. They will form good tubers for next season. Fibrous-rooted species, several of which bed out admirably, are best massed together.

Fuchsias.—Plants in large pots move out of these badly. In some instances plunging answers best, the roots finding their way through the drainage and over the rims of the pots into the surrounding soil. Specimen Fuchsias also look well plunged in the turf. Standard plants are particularly effective in the centres of Begonia and other beds. For massing, quite young plants are perhaps the best, and these should be planted out in fairly rich soil.

Various.—Antirrhinums, notably the compact growers, are admirable for bedding out, and they stand both dry and wet seasons remarkably well. Quite small plants will produce a moderately strong spike, and this cut early will be followed by a mass of smaller ones. Pentstemons are also effective in beds. If small, plant in moderately rich soil and somewhat thickly, or they may be dotted among Violas, Lobelias and Musk. Heliotropes are fine in masses, and a bed of a dark flowering variety with straight young plants of Abutilon Thompsoni dotted among them never fails to give pleasure. Violas ought to have been replanted a month ago.

Filling Vases.—These ought to be emptied of old or very dry soil and a rich loamy compost substituted. Mixtures are not nearly so effective as a mass of one variety with a trailing edging of some kind. Zonal Pelargoniums are among the best plants that can be used, and none surpasses Henry Jacoby in a mass with an edging of blue or white

Lobelia. If either Fuchsias or tuberous Begonias are used make the soil extra rich and give abundance of water. White Marguerites edged with pink-flowered Ivy-leaved Pelargoniums are effective. Much the same remarks apply to window boxes.

THE KITCHEN GARDEN.

Celery Trenches.—If not already done, no time should be lost in getting trenches ready for the main and late crops of Celery. Some soils are simply unworkable for several weeks after they are dug, or say till baked by sunshine, and then well moistened. In this case, then, early digging of trenches is imperative, and early preparation of trenches where the soil is of freer working nature is also desirable. If wanted extra fine one row of plants in a trench is enough, but for ordinary purposes very large "sticks" are not altogether to be preferred. Even in this case nearly or quite as many plants may be grown in single rows as are usually put out in double lines, and the former can always be the more readily and effectively moulded up. Trenches for single rows may be 15 inches to 18 inches wide, and they ought to be fully 20 inches wide for the double rows. Where possible allow 4 feet spaces between the trenches, and some of the soil from the trenches being evenly distributed over this, Lettuces, Kidney Beans, and dwarf Peas may be grown on them to perfection. Shallow rather than deep trenches are the best for heavy soils and cold lying positions.

Celery Beds.—Where space is limited there is much to be said in favour of growing Celery in beds. Open a shallow trench 4 feet to 5 feet in width and distribute the soil on each side, then fork in good solid manure. In this instance the rows must run across and not lengthways of the trench, or otherwise earthing-up will be a difficult undertaking. The rows may be from 12 inches to 15 inches apart, and the plants in the rows from 6 inches to 8 inches apart.

Planting Celery.—Market growers in many instances move the plants to the trenches direct from the seed beds; but in this case the trenches are not deep, and have been got out well in advance of planting, or long enough to have become warmed somewhat. In cold, deep trenches a very poor start is usually made by small plants moved without a ball of soil about the roots. Any pricked out in boxes or on old hot-beds ought not to become badly crowded before they are moved to the trenches. Pass an old knife round them or through the lines three or four days prior to transplanting, and from the long roots thus cut through numbers of root fibres will spring, a compact mass of soil and roots being had accordingly. A good soaking of water ought always be given well in advance of the moving, and then, if not allowed to become tall, the plants will scarcely show any signs of a check. Naturally they would move the most satisfactorily in dull, showery weather; but there should be no waiting for this if by so doing the plants become drawn and weakly. If dry soil in trenches is moistened before planting, and a good watering is given afterwards, there will be little or no flagging. Plants in single rows may be disposed from 6 inches to 8 inches apart, allowing rather more space if extra fine produce is desired; while those in double rows should be from 10 inches to 12 inches apart and 5 inches clear of the sides of the trenches. Plant the white-stalked varieties principally for the earlier supplies, the coloured varieties keeping better.

Tomatoes.—In some districts planting of these against sunny walls has already commenced. Early planting is recommended in the case of any starving in small pots, as these must have time to become well established in their fresh quarters before they will commence fruiting. Those raised late and not badly root-bound should be kept a few days longer in cold frames, or where they can be protected from heavy rains and cold weather. Sunny walls and fences are the best positions for these crops. The low front walls of forcing houses, allowing the plants to trail a little way over the roof, answer well for Tomatoes in favourable seasons, but it should be added that in such exposed sites they are more liable to disease than are the plants less exposed to the rains. Neither a very rich root run nor any particular soil is needed. Freshen up stale or very poor soil with a little loam, solid manure, and burn-bake, while a wholly fresh or temporary border may be formed with good garden soil, with a little manure and fresh loam. A sprinkling of Thomson's or other special manures may be used in either case with advantage in preference to applying it later on. If plants are plentiful dispose them 12 inches apart, and confine to a single stem, but if somewhat scarce arrange them from 2 feet to 3 feet apart, and lay in two side growths in addition to the unstopped leader.

Tomatoes in the Open.—In moderately favourable seasons Tomatoes succeed well quite in the open, the fruit commencing to ripen only a little later than those on plants against walls. The plants might be put out among early Potatoes, arranging them from 2 feet to 3 feet apart each way, or they may be planted 1 foot or rather more apart in rows running from north to south and 3 feet or rather more apart. Rows of runner Beans might be made to form screens on the coldest sides. A very rich soil is undesirable, but the other extreme should also be avoided. Ruby, Earliest of All, Laxton's Open Air, Conference, and Conqueror are among the best varieties for open air culture. In each and every case see the soil is moist prior to planting, and also that the balls of soil and roots are neither dry when put out nor allowed to become so afterwards.

PLANT HOUSES.

Crotons.—Plants that are growing too tall for table decoration may be notched and bound with a little moss. If kept moist roots are quickly emitted, and well furnished heads can be established without the risk of losing the lower foliage. The plants operated

on should be stood by themselves so that they can be liberally syringed, and the house kept close and moist. Heaths of a smaller size may be inserted in small pots and placed under hand-lights in a warm house. If stock is wanted allow the old plants to break, and when the side shoots are large enough they may be rooted. Keep growing plants free from scale and thrip, and syringe liberally. Sponging is an evil that must be avoided as much as possible. Many varieties cannot be done, however carefully, without injury to their curled foliage.

Dracaenas.—To grow these plants well they must never become stunted; from the time the heads are rooted, or the plants raised from portions of stem, they should be kept growing. If unduly confined at their roots the plants are checked, the lower foliage falls, and they rarely do well afterwards. In potting these plants all that display signs of stunted growth should be discarded. All kinds need careful watering after potting until they are rooting freely. For stove sorts a warm moist atmosphere is necessary, and shade for a few hours during the hottest part of the day. Cool kinds make the greatest progress when grown in heat; under cool conditions they are too long on hand. When once they are fairly started an intermediate temperature with abundance of moisture and shade suits them admirably. From root cuttings some grand table plants can be grown if inserted in heat at the present time. In from 3 to 5-inch pots the old *D. congesta* makes capital shapely plants, and a good number of small plants for many purposes will be found useful.

Gardenias.—Where a young stock was raised last August or September the plants should be growing freely in 6-inch pots, and old stunted plants that have flowered may be thrown out. The shoots of the young stock should be pinched to induce them to branch freely. Grow the plants fully exposed to the sun in a warm moist house. The soil should be kept moist but not saturated, or these plants become sickly and stunted. When well rooted a little chemical manure may be applied to the surface once a fortnight. Old plants that it is necessary to keep may be cut down and started again into growth in brisk heat. If bottom heat can be given all the better.

Cyperus alternifolius.—Young plants raised from seeds and established in thumbs should not, if wanted a useful decorative size in 5-inch, be grown in too warm a temperature. When placed into 5-inch give them cool treatment. They are very useful for cutting, and are very effective hanging out loosely from amongst flowers. When plants are needed for this purpose they may be grown on, so that their stems attain to 3 or more feet in length. *C. distans* may be given similar treatment. It is a useful Grass for grouping and also for cutting.

Poinsettias.—Those rooted from eyes in small pots may be placed into 3-inch size. Pot firmly and grow the plants close to the glass. Admit air to them daily and increase the supply, so that firm sturdy growth will be made. It is a mistake to grow them too soft in their early stages. They generally run up tall, and the foliage falls sooner or later. Cuttings that have been rooted from soft shoots may be treated in a similar way. Old plants, if needed, may be cut down at once and started into growth. As soon as they break shake away all the old soil, and repot into smaller sizes. When established grow with the young stock.

Medinilla magnifica.—If grown in the stove proper this plant will be in flower. If more root room is needed pot it as soon as the flowers fade. It will do well in three parts good loam, with the other part composed of leaf mould and manure; coarse sand may be added. Pot firmly, and allow the plant to make its growth in a close, moist, shady atmosphere, when growth has been completed expose it to the sun to ripen the wood.

Begonias.—For winter flowering Begonias may be rooted without delay. Insert them singly in small pots, so that they can be grown without disturbing them when rooted. Once they are rooted gradually harden to cool airy treatment. The foliage is very liable to rust when grown in a close confined atmosphere. Old plants may be cut over, allowed to break from the base, and then placed into larger pots.

THE BEE-KEEPER.

APIARIAN NOTES.

CHLORIC DROPSICAL FEVER.

I HAVE had this disease several times in my apiary since 1858, and have given my observations in the *Journal of Horticulture*. From the first I have never been able to alter my opinion of it, unless in a number of cases in 1894, where the hive survived after being reduced to less than a cupful of bees. One of these without any assistance survived the winter, and at the present time is a good strong hive. That the disease is hereditary, and not owing to anything in the hive, I am positive, as I am that feeding or an inflow of honey stays the disease, for not in a single case has it done so with me.

A good illustration supporting my views has occurred with me this spring, and I have experienced many similar cases. A Carniolan queen was joined to a Punic stock in October of last year. The disease manifested itself early in April amongst the Punic

(a strong stock), and they are now all dead, while not a single Carniolan is affected. If an inflow of honey or feeding would have stayed the scourge then these bees would have been cured, because they had both.

My opinion of the origin of the disease is, either the ova becomes affected or the queen contracts some disease in her sperm sac, because drones do not die of the disease, which both may be brought on by some peculiar feeding which affects the ova or eggs. Certainly it is not, as some say, infectious, or the Carniolans would have succumbed as well as the Punics. My opinion is further supported by the fact that the disease is virulent only amongst bees laid between certain dates, those laid before and after having an entire immunity from it.

THE APIARY.

For two weeks from the 1st of May the weather has been drouthy, frosty at night, and lately cold, the night temperature being repeatedly at freezing, and the day temperature on the 17th was 45°. The fruit trees, so beautiful in their mantles of white and pink blossoms, in one night were browned, so piercing were the north-west winds.

Honey gathering has been very limited since May came in. I shall, to keep up breeding and prevent backgoing, feed a little daily till the weather is favourable for honey gathering. A few pence spent on each hive from now till honey flows will turn the scale in favour of the bee-keeper to pounds instead of a loss. Many young bees are hatching daily, which consume much honey. When no honey is to be had the young bees are often expelled the hive.—A LANARKSHIRE BEE-KEEPER.

A RETROSPECT.

BEE-KEEPERS, like other people, must have their growl, and during the past few months they have had more cause than usual to complain. First it was the mild weather experienced until the new year. Stocks were strong in bees which consumed more than their usual supply of stores, which I find always happens more during a mild autumn than when there is an extra spell of cold weather. Then of a sudden extreme cold sets in with the thermometer down to zero, or within a few degrees of it, for several nights in succession. Low temperatures prevailed for the first two months of the year; many stocks in the hands of negligent bee-keepers, who through various causes had omitted to supply their bees with sufficient stores in the autumn, succumbed.

A few days ago I visited an apiary where last year there were several good stocks of bees in well-made frame hives, from which very little surplus store were taken. These were left to take their chance, and the result is that only one stock is now alive, a practical proof, if such is needed, that all stocks should be thoroughly examined in the autumn, and those that are short of stores should have their requirements attended to. Another bee-keeper who had upwards of forty stocks, chiefly in straw skeps, and whose bees had the swarming mania during the few really fine days last summer when honey was coming in freely. On being appealed to not to neglect them, as many were very weak and could not possibly live through the winter without some assistance, he rejoined, They must take their chance, as owing to several bad seasons in succession it would not pay to feed them.

This, I need hardly say, is a great mistake, as it is a long lane that has no turning, and good honey seasons will come in the future as they have done in the past. It is much better to keep a few stocks and attend to them well than attempt to keep a greater number and neglect them. After the long winter the usual changeable weather set in till the early days of May, when summer appeared to come all at once. Day after day the sun shone from an almost cloudless sky. Bee-keepers began to predict a record year. In the apiary stocks that had wintered well were making great headway, and as honey and pollen were coming in somewhat freely from the many spring flowers and fruit trees.

In the hives breeding was going on apace, some of the most forward colonies being nearly ready for swarming, and preparations were made for supering, when the wind suddenly veered round to the north-east, and for ten days the minimum reading of the thermometer placed 4 feet from the ground registered only a few degrees from freezing, the maximum reading of the same varying 50° to 55°. In several places snow fell; fortunately it did not actually freeze, but the high winds played sad havoc with the blossom, and much damage has been done to the fruit trees, the fruit crops in some exposed positions I fear being nearly ruined.

During the past twenty-four hours (May 25th) heavy showers have fallen, and the weather being much warmer there is now a better prospect. The cold caused a temporary check to breeding; a great number of drones in the grub state were cast out of the hives, but no workers were disposed of, and with the return of warmer weather, of which there is every appearance at present,

bees will again make headway. Stocks on the whole are much later than usual, and there will be very few May swarms to chronicle.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUE RECEIVED.

Acme Chemical Co., Bolton, Lancashire.—*Weed Killer*:



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Cucumbers (*S. G. R.*).—The plant reached us too late for an examination to be made for this issue, but it shall have early attention.

Asphalt for Paths Without Boiling the Tar (*G. C.*).—We have no recollection of the recipe you mention, and fail to find it in our files. Can any correspondent oblige with particulars of making asphalt without boiling the tar by using quicklime in place of boiling the tar?

Raising Begonias (*Double*).—We are not able to state the particular varieties which the most successful raisers have found by experience to be best adapted for intercrossing for the object in view, and if we asked them they would have a way of their own in replying—very pleasant and courteous if not exactly what you would wish. Possibly they are a generation or two ahead of you in the way of parentage—we mean Begonia parentage of course, and what appears difficult to you seems easy enough to them.

Mulching Roses (*Ferndale*).—If the soil is of a light nature and liable to "dry out" in the summer, we should not fork in the long litter as it would make the ground still lighter, and the surface covering would be of service in preventing evaporation; but if the ground is very heavy it would be improved by the manure being pointed in, provided the roots of the plants are not disturbed, and even then a covering of short manure spread on the soil on the approach of hot weather would do good; short manure would be better than long also for mulching light soil.

Steam Pan for Boiling Fruit (*J. B.*).—The idea of filling the steam cavity with water is certainly novel and also dangerous. Even if you had an escape pipe there would be danger, but with the thing closed an explosion must take place. Besides, how is the fruit to boil in the pan if the water in the steam cavity is not made much higher in temperature than boiling water? This means steam, not water. There is no need for a steam-jacketed pan if you intend to put it on the fire, but an ordinary copper or enamelled iron pan would serve your purpose. Such are used in large establishments and answer well, but, of course, steam is better for general sale requirements.

Shading Tomato Houses (*A. F.*).—Tomato plants do not do well in shade, it not being possible to afford them too much light or air under favouring external conditions. As the plants, however, do not grow freely a slight shade as that of whitewash (whiting mixed with skim milk) brushed lightly on the glass outside would modify the sun's rays. It would be better to supply stimulating food at the roots, such as top-dressings of the advertised fertilisers, or bone superphosphate three parts, kainit two parts, and nitrate of soda one part, mixed after crushing fine, and using 2 to 4 ozs. per square yard at about three weeks' interval. The shading, if any, must only be temporary.

Flies from Apple Trees (*R. M.*).—The somewhat large black flies belong to the order Diptera, tribe Empidæ, and are known as *Empis tessellata*. Your specimens consist of both males and females, and had visited the Apple trees in quest of prey, which consists of insects of various kinds, especially the small leaf-roller moths, in capturing of which the perfect insects display wonderful assiduity and skill, their long legs embracing the victim, closing tightly around the body, binding together legs and wings, so as to prevent all struggling, and the sharp beak with which the mouth is provided is thrust deep into the body. Little is known of the larval condition of the *Empis*, but so far as we have observed the grubs do not feed on living vegetation, yet we have had them emerge from pupa contained in vegetable matter under-gone decay.

Forcing Kidney Beans (A. J. G.).—Dwarf Kidney Beans succeed admirably when grown in borders in very light houses, not otherwise, and many are so grown; but there must be no obstruction whatever to the light from plants on shelves suspended from the roof. With the Beans grown in pots or boxes on such shelves other useful crops may be grown beneath. A great number of Beans are grown in pots on stages or shelves. Perhaps the majority of growers prefer 8-inch pots, but some find the 7-inch size answer the purpose. You will find much information that will be of service to you in some essays that we shall publish on the profitable occupation of glass structures in the winter, and for which essays silver medals will be awarded.

Grubs Destroying Chrysanthemum—Dressing for Infested Soil (X. Y. Z.).—Of the two grubs only one reached us, the other having vanished. It is the larva or grub of the daddy longlegs fly (*Tipula oleracea*), commonly called leather jacket, from its tough skin. For select plants, such as Chrysanthemums and other flowers, baits of Potato, Mangold Wurtzel, Turnip, or Apple, affixed to sticks and sunk 2 inches in the ground, should be used, pulling them up every day or two, and the grubs found attached to them, or in the soil close around, be removed and destroyed. For the land apply a dressing of two parts kainit and one part nitrate of soda, crushing the salts finely, mixing thoroughly, and using 3½ lbs. per rod, or 5 cwt. per acre. The mixture, in the reverse order of that given, acts better on the grubs, but you want a cheap mixture, which is in some respects better for the crop. It is difficult to advise when patients want medicine of their own choosing.

Weevils Infesting Vines, Peach Trees, and Roses (W. C. D.).—The swarm of weevils you sent in the box were glad to escape, and caused trouble in collecting and destroying. Fair samples are always desirable, but it is possible to have "too much of a good (or bad) thing." The pests are the grooved weevil, commonly called the black Vine weevil (*Otiorhynchus sulcatus*), and are very destructive to the foliage of various plants in their perfect state, whilst in the larval state they feed on the roots. You could not do better than capture as many of the pests as you can by placing sheets of white paper beneath the trees or plants and shaking them sharply after dark, when the insects drop on to the sheets, become visible, and are readily cleared away and destroyed. Houses should be entered very gently, and a light not used till the trees or Vines have been shaken. This plan is safe and better than poison for such fruits and plants as Vines, Peaches, and Roses.

Leaves of Tomato and Melon Plants (G. G.).—The Tomato leaf does not give trace of any parasite, but the appearance somewhat accords with that of plants suffering from eelworm at the roots, which you may ascertain by examination. If you find the roots knotted or thickened you may water them with soluble phenyle solution, using a wineglassful to 3 gallons of water, employing that quantity per square yard if the plants are set in the ground; but if in beds of about a foot depth use half the quantity, or 1½ gallon per superficial yard. The Melon leaf has some spots of a fungoid description, evidently a *Glæosporium*, but there are no outgrowths, so that it cannot be determined. Is there not also eelworm at the roots? The leaf indicates this, and the fungus is not sufficient to account for the disfigurement of the leaves. If the plants are badly infested with eelworm it is not likely they will recover, as they do not push fresh roots so freely from the stem, hence cannot be restored by placing lumpy loam about the stems, as is feasible with Tomato plants. Nothing will restore destroyed tissue or that injured by eelworm.

Tomato Fruit Spotted (G. N. S.).—The fruit is affected with black stripe, or Tomato rot, in a very characteristic manner. It is caused by a fungus (*Macrosporium tomati*). There is no means of restoring decayed tissue, and but little chance of arresting the spread of the evil in the affected fruits, as the mycelium of the fungus is situated internally, and thus cannot be reached, or only partially, by outward applications. It may, however, be prevented spreading by spraying every fortnight or three weeks with Bordeaux mixture. Prevention should be the chief object. 1, Use only sound seeds from perfectly clean fruit. 2, Spray with Bordeaux mixture (a) as soon as the first trusses show, (b) when the flowers are formed, and (c) again before they expand; also (d) when the fruit is set. 3, Use nothing but thoroughly decayed manure, neither mulching with nor using strawy material. 4, Maintain a dry condition of the atmosphere, with judicious ventilation. If you prefer dusting use a 1 per cent. mixture of precipitated carbonate of copper and air-slaked lime, which is easily applied with an ordinary sulphur duster or bellows apparatus. Some cultivators find it quite as efficacious as the Bordeaux mixture.

Questions from Sydney (A. Busby).—1, *Gesneras*. These plants are best kept free from insects by preventive measures, as syringing is injurious to their beautiful foliage. Choose a convenient time for emptying the house and giving every part of it, whether visible or not, a thorough cleansing. Remember that insects lurk in the most unlikely places. They are often found, or rather hibernate, whether they are found or not, on the undersides of stages, in fissures in woodwork, cracks in walls, in dry soil near the walls and hot-water pipes—anywhere where they are most likely not to be seen. With a clean house, clean tubers, clean pots, and clean soil, these plants can be kept free from insects by good cultural management. The pots should not stand on dry open stages, but on a close base that can be kept moist in hot sunny weather; this must not be allowed to suffer by want of water—that is, the soil should never become so dry as to shrink from the pots. The

floors and walls ought to be syringed twice a day or more in the summer, as a fairly moist atmosphere promotes the growth of the plants, and checks the increase of their enemies. The plants should be shielded from hot sun, and must not have dry currents of air driving against them through side ventilators or doors. Under the conditions indicated they develop handsome foliage. Some good forms out of many are Barlardi, chromatella, cinnabarina, Donckelaari, exoniensis, Lindleyana, nigrescens, refulgens, pyramidalis, rosea punctatissima, sceptre cerise, and zebrina splendens. 2, The address for which you ask is Messrs. R. P. Ker & Sons, Aigburth, Liverpool. 3, *Tectorium*. There is a wire gauze gelatine material used for roofing where a subdued light is needed, and possibly the above may be its name. Some part of the Westminster Aquarium roof is, we believe, covered with it. We have also seen it used in one of the London parks for the roof of a potting shed. Mr. Moorman, the Superintendent of Victoria Park, says it answered that purpose well, admitting sufficient light without side windows; but he does not think plants would succeed under it. Possibly some kinds—such as Palms, Ferns, and even *Gesneras*—might answer where the light is more intense than in London. If you try it, do so experimentally. For verandahs it would be likely to prove suitable, as it is light and durable.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*Ross-shire*).—A, *Saxifraga muscoides purpurea*; B, *S. aizoon minor*; C, *S. hypnoides*; D, *S. cotyledon*; E and F, Hybrid *Primulas*, that can only be named by comparison in a large collection. (*J. E.*)—Specimen crushed in the post; send fresh. (*W. H.*)—1, *Pyrus Aria* (White Beam tree); 2, *Thalictrum aquilegifolium*; 3, *Prunus Padus* (Bird Cherry); 5, dead. (*T. S.*)—*Aërides Fieldingi*. The *Dendrobium* is unrecognisable without flowers. (*Somerset*).—Possibly the plant may be *Gloriosa superba*, but until you are able to send a flower we cannot furnish the name with certainty. (*Junior*).—A well-coloured form of *Cattleya Mossiae*. (*W. S.*)—*Sprekelia formosissima*.

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, London, W.

COVENT GARDEN MARKET.—MAY 29TH.

TRADE steady, with full supplies.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, Nova Scotia, per barrel..	10	0	to	21	0	Cobs, per 100 lbs.	10	0	to	0	0
„ Tasmanian, per case ..	5	0		8	6	Grapes, per lb.	1	6		4	0
Asparagus, English, per bundle ..	1	0		3	0	Lemons, case ..	10	0		15	0
						Peaches, per dozen ..	6	0		24	0
						St. Michael Pines, each ..	2	0		6	0
						Strawberries, per lb.	1	0		4	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb. ..	1	0	to	0	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0		0	0	Onions, bushel	3	6		4	0
Carrots, bunch	0	3		0	4	Parsley, dozen bunches ..	2	0		3	0
Cauliflowers, dozen	3	0		6	0	Parsnips, dozen	1	0		0	6
Celery, bundle	1	0		1	3	Potatoes, per cwt.	2	0		4	0
Coleworts, dozen bunches	2	0		4	0	Salsafy, bundle	1	0		1	6
Cucumbers, dozen	1	6		3	6	Seakale, per basket	0	0		0	0
Endive, dozen	1	3		1	6	Scorzonera, bundle	1	6		0	0
Herbs, bunch	0	3		0	0	Shallots, per lb.	0	3		0	0
Leeks, bunch	0	2		0	0	Spinach, bushel	1	0		1	6
Lettuce, dozen	0	9		1	6	Tomatoes, per lb.	0	6		1	0
Mushrooms, punnet	0	9		1	0	Turnips, bunch	0	3		0	6

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	2	0	to	4	0	Pelargoniums, 12 bunches	6	0	to	9	0
Azalea, dozen sprays ..	0	6		1	0	Primula(double), doz. spys.	0	6		1	0
Asparagus Fern, per bunch	2	0		3	0	Roses (indoor), dozen	0	6		1	0
Bouvardias, bunch ..	0	6		1	0	" Tea, white, dozen ..	1	6		2	6
Carnations, 12 blooms ..	2	0		6	0	" Yellow, dozen (Niels)	3	0		6	0
Eucharis, dozen ..	4	0		6	0	" Safrano (English),					
Gardenias, dozen ..	3	0		4	0	dozen ..	1	0		2	0
Geranium, scarlet, doz.						" Yellow, dozen blooms	1	6		2	0
bunches ..	4	0		6	0	" Red, dozen blooms ..	2	0		4	0
Lilac (English) per bunch	0	4		0	9	Smilax, per bunch ..	4	0		6	0
" (French) per bunch	3	6		4	6	Spiraea, dozen bunches ..	4	0		6	0
Lilium longiflorum, dozen	3	0		4	0	Stephanotis, dozen sprays	3	0		4	0
Marguerites, 12 bunches ..	1	6		3	0	Tuberose, 12 blooms ..	0	4		0	6
Maidenhair Fern, dozen						Violets (English), dozen					
bunches ..	6	0		8	0	bunches ..	1	0		2	0
Orchids, dozen blooms ..	1	6		12	0	Violets (French), bunches	1	0		2	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (golden) dozen	6	0	12	0	Foliage plants, var., each	2	0	10	0
Aspidistra, dozen ..	18	0	36	0	Genistas, per dozen ..	8	0	10	0
Aspidistra, specimen plant	5	0	10	6	Geraniums, Ivy, per dozen	4	0	8	0
Azaleas, each ..	3	0	4	0	Heliotrope, per dozen ..	6	0	8	0
Calceolaria, per doz. ..	6	0	9	0	Lobelia, per dozen ..	4	0	6	0
Cinerarias, per doz. ..	8	0	10	0	Lycopodiums, dozen ..	3	0	4	0
Coleus, per doz. ..	6	0	9	0	Marguerite Daisy, dozen ..	8	0	10	0
Cyclamen, dozen ..	9	0	12	0	Myrtles, dozen ..	6	0	9	0
Dracæna, various, dozen ..	12	0	30	0	Palms, in var., each ..	1	0	15	0
Dracæna viridis, dozen ..	9	0	18	0	" (specimens) ..	2	0	15	0
Erica, various, dozen ..	9	0	13	0	Pelargoniums, per dozen ..	9	0	15	0
Euonymus, var., dozen ..	6	0	18	0	" scarlets, per				
Evergreens, in var., dozen	6	0	24	0	dozen ..	3	0	6	0
Ferns, in variety, dozen ..	4	0	18	0	Rhodanthe, per dozen ..	4	0	6	0
Ferns (small) per hundred	4	0	6	0	Roses, per dozen ..	8	0	24	0
Ficus elastica, each ..	1	0	7	0	Spiræa, per dozen ..	6	0	12	0



POULTRY.

THIS is the best time of the whole twelve months to make changes and improvements in the poultry of the home farm, having well in view all possible requirements of the household, and striving by the light of experience, of past success or failure, to render the supply of poultry and eggs perfect. Perfection in this matter being easily defined as numbers of chickens small in the legs with deep-fleshed, plump breasts, plenty of eggs all the year round, and a full supply of other poultry—Turkeys, Geese, Ducks, Pigeons, Guinea Fowls, each in their season, all of the best.

Easily said but not so easily done by any means, and in our connection with home farms we have had much difficulty in the maintenance of a really full supply at all, to say nothing of the high class produce which we have ever striven for, and in the obtaining of which there is no insuperable difficulty.

At the outset, or whenever reforms are set about in good earnest, ways and means must have due attention. If we would have quality in our chickens we must have plenty of Dorking hens, either coloured or white, and cross them with the Old Game cock. When young birds are purchased specially for this purpose they must be kept apart from all other breeds. This is so obvious that any mention of it might well be thought uncalled for. It certainly ought not to be required, but we once took much pains in the purchase of young birds for this purpose, and then found the home farm bailiff had turned them down with other breeds kept specially for their eggs.

With ordinary care the chickens from this cross are as entirely satisfactory as they are superior to all other chickens for table. In this matter mere size does not tell, heavy, coarse birds of whatever breed having no chance in competition with the Game-Dorking chicken. We, therefore, make it a special point to keep up an unbroken supply of them. The only way of doing this is to get a tolerably clear idea of the actual number required, and to allow a liberal margin beyond this for all possible contingencies, any surplus chickens being eagerly purchased by the higglers or poultry dealers.

Milk, oatmeal, and suet in mixture is the favourite food of the wholesale chicken fattener for market. We have used it with satisfactory results when the chickens have been shut up in fattening coops. But we are bound to say that we have had excellent chickens as plump and fat as heart could wish, fed on oatmeal made into paste with milk, and some whole maize, and they were not shut up at all, but were let run on grass with access to abundance of grit and dust, and had as much food as they could clear up when it was given to them. This requires a little judgment and care, so that no food is left lying about for sparrows and other pests after the chickens have done.

For eggs we certainly prefer Minorcas. We say this without prejudice, and with no wish to detract aught from the merits of

other breeds. To anyone wishing to start a yard of Minorcas or other pure breeds now, we strongly advise procuring a stock of young birds in sufficient numbers now to ensure a full supply of eggs when wanted. If winter eggs are required, then procure March, April, and May hatched pullets. But do avoid buying sittings of eggs. We were shown an Orpington cockerel recently which we were told had cost 15s., as it was the only living result of two sittings of eggs purchased from a famous Orpington breeder.

Purchased eggs for sittings are notoriously a doubtful quantity, and yet they are so tempting, and it seems so delightfully simple when one has broody hens. To listen to a certain worthy farmer's wife, as we did in a market train only an hour or two before sitting down to write this article, it all seems simple enough. Said she, "We set eighty eggs and got eighty chicks, an' we sold 'em about half-grown at five shillin' a couple." This to two other henwives with whom she was discussing practical "home" farming, and who appeared to receive her statement in perfect good faith. But they did raise doubts about the rearing of Turkey poults with anything like certainty, and we knew they were right in their preference for a barndoor fowl or any other good hen as a foster-mother rather than a Turkey hen, because she drags them about through long wet grass before they are old enough, causing serious losses.

WORK ON THE HOME FARM.

Drier weather with strong cold wind has caused some difficulty in the sowing of Swedes and white Turnips. The only safe plan has been to plough, roll, and sow at once, making the complete work a daily matter. Though the plant does not come up quite together under such practice, there can be no serious objection to it. Good work has been done among the early sown Swedes and Mangolds, and though the cold weather has checked growth a bit the weeds have been got well under.

During the past fortnight the value of quick action in manure has been admirably shown in the brisk growth of the Wheat dressed with nitrate of soda, of spring-sown Oats drilled in with a well balanced mixture of chemical manure, and of pasture herbage similarly dressed three months ago. Glad are we to have got the Carrots singled and weeded. This is an expensive crop, but Carrots are so much in demand in the light horse stables, and are so useful among stock during the last three months of the year that we always have an acre or two of them.

Some slight damage may have been done by high, cold wind among fruit trees, but there appears to be no serious damage from this or any other cause. In Kent there is ample promise of a remarkably abundant fruit crop generally. Horse and hand hoes were kept going briskly among Strawberries till about a week ago, when the litter carts appeared, and the litter or long stable dung was thrown out of the carts by hand in small heaps, which were spread along between the rows by men with forks, women following with a stick in each hand about the length and size of a light walking stick, with which they worked the litter well up to and close around the Strawberry plants.

By this means all splashing of the fruit is prevented, and every shower cleanses the litter, washing its nutriment into the soil about the roots. The blossom is wonderfully strong and abundant, giving promise of abundance of really fine fruit, which is likely to become so cheap, that recourse will be had to jam making early in the season.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet

DATE.		9 A.M.				IN THE DAY.				Rain.
		Barometer at 32° and Sea Level.	Hygrometer.	Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.	Radiation Temperature.	In Sun.	On Grass.	
1895.	May.		Dry. Wet.			Max. Min.				
Sunday ..	19	29.626	48.7 46.5	N.	52.8	51.1 46.0	63.1 45.8			—
Monday ..	20	29.765	46.9 44.1	N.	51.9	55.8 44.0	84.9 43.1			—
Tuesday ..	21	29.735	54.9 49.4	N.	51.2	62.1 42.8	106.2 37.0			—
Wednesday ..	22	29.863	52.7 51.2	N.	51.9	69.0 41.0	113.8 35.4			—
Thursday ..	23	29.933	60.4 53.4	N.E.	53.9	69.9 45.1	109.9 59.1			0.038
Friday ..	24	29.928	52.7 50.0	N.E.	54.0	68.9 46.9	107.0 44.1			—
Saturday ..	25	29.992	51.8 49.7	N.	54.9	70.8 48.9	108.1 43.9			—
		29.835	52.3 49.2		52.9	63.9 45.0	99.6 41.2			0.038

19th.—Overcast throughout. REMARKS.
 20th.—Overcast almost throughout.
 21st.—Sunshine at times in morning; generally overcast in afternoon.
 22nd.—Overcast early; generally sunny from 10.30 A.M.
 23rd.—Bright sunshine all morning; clouded over at noon, thunder and slight shower at 1.30 P.M.; overcast afternoon, and shower at 3.30 P.M.
 24th.—Fine, and generally sunny.
 25th.—Overcast till 10 A.M.; bright sunshine after.
 Another dry week; thunder on 23rd.—G. J. SIMONS.

THE NEW EARLY STRAWBERRY FOR 1895, STEVENS' WONDER.

The earliest variety in cultivation and very prolific; solid fruit, good flavour, high perfume.

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Having purchased the whole of the stock of this grand new early Strawberry from the raiser, we have pleasure in offering it as follows:—

STRONG PLANTS, in Pots, £5 per 100, 15/- per doz.

RUNNERS .. £3 .. 9/- ..

Ready for delivery early in July. Early Orders requested as stock is limited. Further particulars upon application.

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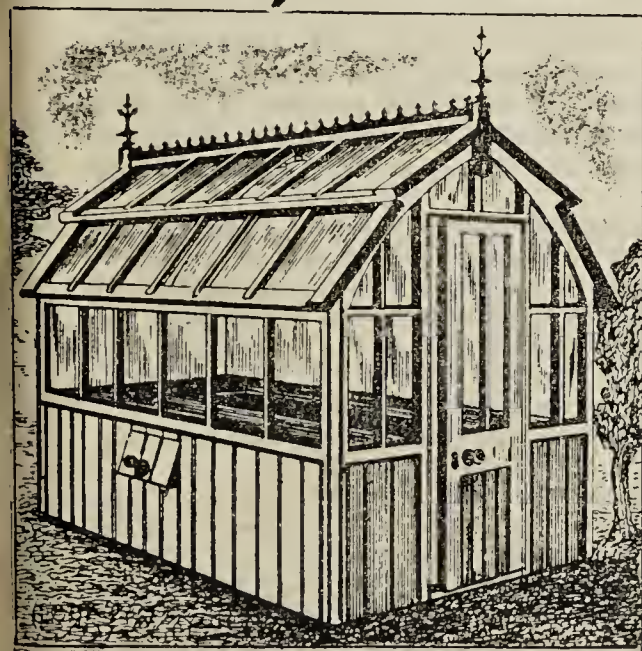
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Journal of Horticulture.

THURSDAY, JUNE 6, 1895.

HOW GARDENERS ARE MADE.

FROM a cursory review of the swelling ranks of the great army of gardeners, conclusions may be drawn that the noticeable congestion is a natural result of the increase of population, a cause which by analogous reasoning should produce the same effect in all the various trades and professions. With some, indeed, it may to an extent do so, but not in any does it appear to be more acutely felt than in gardening. Without ignoring the waves of depression which periodically affect other classes of the community, they are more of the spasmodic kind than those which immediately concern us, which by their persistence may now be regarded as chronic.

The rising generation of our large industrial centres have to-day many new channels opened to absorb their energy, and, I think, the City boy bred and born under the more exciting conditions of life is apt to look on gardening as "rather slow." Hence, recruiting from this quarter is not a prominent feature in the question. Obviously, there are many reared under the same conditions who cannot be included in this category, yet are precluded by want of opportunity, or from absence of those hereditary intuitive influences pertaining to the more natural conditions of country life.

Setting aside this large portion of the population, which does not appear to materially affect this important question, whence comes the supply, which so much exceeds the demand, and from what cause proceeds the effect? To the first query, which is simple, the answer is plain—From the country districts. To the second, which is more subtle than simple, the reply may be—I think is found—in ambition. The ambition of the boy to be a little better than his father, and the unselfish parental desire that he should be so—a thesis applicable to and obtaining with all sorts and conditions of the human race.

From this one need not go far to seek, nor is it difficult to find the class from which this influx is derived—viz., the agricultural; nor is it needful to point to that depression, which furnishes an additional incentive for young Britain to escape from it. Any port in a storm,

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particularly the nearest one; hence by the contiguity of horticulture to agriculture—the garden to the farm—relief is sought, the rush is made, and overcrowding the result.

Setting forth a fictional example, founded on facts furnished by many a rural locality, illustrating how some gardeners are made, we may note a cottage home plentifully bedecked with olive branches—a source of pride and anxiety to the worthy parents. The time arrives when the eldest of the apple-faced boys should be contributing something to the family exchequer, and to get him into the squire's garden is advancing by leaps and bounds over the head of father, who has toiled and moiled for years on the farm. Our young recruit and his parents arrive, with but little reflection, at the conclusion that if he can be enlisted on the staff at the Hall gardens, it is but a matter of time when he will attain to a similar high position as Mr. Prunewell, the squire's head gardener, who, as everybody knows, takes all the principal prizes at the Hortus-cum-Digwell flower shows. Should a fee be required to unlock the gates to these Elysian fields, it is cheerfully provided from the rainy day fund, which should be as powerful to invoke prospective blessings as it is to stave off future troubles.

Ambition now soars high, and tempts—which the passport if provided enables—him to go straight through the glass houses in his endeavour to reach the goal. Consequently but little, if any, practical knowledge of outdoor work is acquired. So many examples may be noted of this way in which gardeners are made that it need not be attributed to imagination, although there are happily to be found exceptions to this ill-balanced method, particularly in North Britain, where the importance of a sound drilling in outside work is duly recognised. Having launched our apple-faced hero on the sea of life, what more natural, or apparently more desirable, than that other developing pippins, still dependent on the parent stock, should be sent to the same market, irrespective of any consideration of a glut?

Now, gardeners—in the fullest sense of the word—are born, not made, although it would be presumption in localising their birth to any class or condition of life. Given all necessary qualifications to those who are eventually to rule successfully, these are those who by natural right should occupy the position they are qualified to adorn. It may be admitted that the majority of them do so sooner or later, but they are the class (not the cause) most acutely feeling this congestion in their trial by the ordeal of waiting.

Some time since, when this topic was touched on (editorially, as far as I recollect), some crumbs of comfort were afforded by the deduction (I am not quoting verbatim) that nine-tenths of the really good and capable men would find their legitimate level. Giving the matter that thought it deserves, the force of this truth—and I believe it to be such—is evident. Here is comfort for the nine, but what of the tenth? No hope! This fact has to be faced. The tenth does not look very formidable on paper, but embracing the area of our country the serious proportion it then assumes is not to be lightly passed over; nor is it, as plainly evidenced by the space given to this subject from time to time in the *Journal of Horticulture*.

Apropos of the silver medal which the authorities of the Journal are liberally bestowing for an essay on a matter of some importance, I would respectfully suggest to them that any expression of thought which would pave the way for remedial measures, either by restricting the supply or increasing the demand, would be worthy of a gold medal. Moreover, a practical solution of the puzzle initiating a golden age for good gardeners should prompt such a medal assuming the dimensions of Captain Cuttle's historical watch.

From this point of view—viz, the natural desire of self-preservation as a class, and the protection of that great minority, "the tenth," with a mitigation of the sufferings of the nine, we must charitably look on the other side from whence comes the crush. Competition in the field of horticulture is open to all, and the desire

of each generation to step onward and upward is not only enforced by circumstances but encouraged by education. May the latter ever be so! Not any selfish views may prompt us to shut out these considerations, nor fail to acknowledge the worthiness of those who bear the burden of agricultural labour. Rather would we, and do, hold out a helping hand to our hard-working brother by transplanting his olive branches into the gardening world, even though it be, and undoubtedly is, to our own detriment.

The decadence of farming has obviously much to do with gardening difficulties, and though our farming friends are straining every nerve to make two blades of grass or corn to grow in the place of one it is only to find that the virgin soil of "the West" is yielding three minus the handicapping they are subject to. But on this side of the subject it is needless to dwell, unless it is to point the moral that relief from this quarter—the supply—appears to be remote indeed.

Those immediately concerned—head gardeners—are so keenly conscious of the growing evil that we find them questioning the wisdom of training their own sons to follow in their footsteps. Although it is their gain not to do so, it can only be generally regarded as a loss to the gardening world. And, when we consider the moral force a head gardener has to give his son a push in his own profession, whilst prudence causes him to nip all horticultural tendencies in the bud and shunt him out of it, it clearly points to something rotten in the State of Denmark.

Passing from supply and how gardeners are made, there appears to be something to be said on the question of demand. Are there to be found here any rays of hope in the gathering gloom? I think there are; but in view of space and dreading the editorial secateurs I will at present defer it, and, if permitted, return to it under the heading of "Facing the Fact."—INVICTA.

FREE GROWTH OF PEACH TREES.

WHEN first planted in a fresh border Peach and Nectarine trees are apt to grow too strongly to be productive, say during the next three seasons. Especially is this the case when the grower is free with the knife at the winter pruning, and either the finger and thumb or the knife during the spring and early summer months. There was a time when very few, if any, gardeners ventured to lay in sub-lateral or secondary growths in the case of trees under glass even, and would have scoffed at the idea of saving any on open air trees. All this, however, is being gradually altered.

Instead of removing all the sub-laterals or breaks on the current season's growths, and which only aggravate the evil of grossness, the better plan is to remove those straight from the trees and a portion of the remainder, leaving only what can be laid in on the upper side, and in some cases on both sides of the primary growths without undue crowding. I shall perhaps be told that these side growths cannot possibly ripen sufficiently to fit them either for fruiting purposes or assisting in laying the foundation of a serviceable tree, but not by those who have given the plan a fair trial. Where the houses are old-fashioned, that is to say very heavy and dark, also indifferently heated, I can appreciate the necessity for depending solely on the shoots first formed, but there are not many such structures to be seen, the great majority having very light woodwork and extra large squares of glass. Of these latter it cannot truthfully be said that the wood fails to ripen satisfactorily under them. On the contrary, it is sometimes necessary to shade lightly in order to prevent premature maturation of wood, and early loss of foliage by red spider.

In these light, and it may be freely ventilated, structures there ought to be no hesitation about laying in some of the sub-laterals now so freely forming on the stronger growths of young trees, as it is certain they will mature sufficiently for all purposes. Fail to do this and the chances are still more sub-laterals will be pushed out from the fattening laterals, with the eventuality of few or no fruit buds, unless it be at the extreme ends, which, if the practice is carried out in its entirety, will be cut off at the winter pruning. These much-pampered growths are very difficult to deal with the following winter, and prune how you will there is every likelihood of the breaks from them proving even grosser than the parent branch.

If the trees could be depended on to last one's lifetime in good health and vigour there would be some excuse for taking extra

pains in laying the foundations, but in many cases they are liable to fail just when they have attained to their most serviceable size. Sometimes this is due to faulty stocks, stem canker, gumming, and in others to certain local conditions that do not suit stone fruits of any kind, and not unfrequently the mischief might be traceable to over-pruning at the nurseries. In our climate the trees ought really to be prepared against warm walls, and in not a much-enriched soil, but as this cannot be profitably undertaken on a large scale by nurserymen, gardeners should train their own trees. Many years ago, Mr. W. Taylor, when at Longleat, initiated the plan of starting with maidens against the open walls, running them up quickly and making no attempt to form them into great spreading trees. Hitherto the Peach and Nectarine trees against the same walls had proved very disappointing. Whether or not Mr. Taylor anticipated that his smaller quickly grown trees would last longer than those previously planted had done I am unable to say, but am under the impression that he made up his mind that their lives would be "short and merry." Be this as it may, the fact yet remains that very few, if any, of those trees have died, and I can remember them for fifteen years, while the crops produced have been exceptionally heavy and good.

What would have been said, not so very many years ago, of trees only twice pruned producing two dozen fruits and upwards? Yet I can point to several trees planted as maidens in March, 1894, that are now carrying this number of fruit, some of the earliest already commencing their final swelling. Before the season is over some of these trees will cover a roof area of 12 feet square, but at what size and when would they have fruited so freely if we had not laid in sub-lateral growths freely? Those maidens were all extra strong and well matured, and were reserved with a clear stem of 2 feet in order to bring the head of the future tree to the roof trellis at once. This season the stronger growths are again forming side shoots, and the best placed of these will be saved, so that if all goes on well we shall have a roof nearly covered with fruiting wood, and almost a full crop of fruit.

Mr. Challis has done well at Wilton in this direction. We are "going one better." If strong maidens are cut hard back, or say to within 4 inches to the stock, the growths resulting ought to be, and usually are, so vigorous that they must be allowed to divide, and even sub-divide, freely, and in a good position in a heated house the third breaks ought really to ripen sufficiently well to fruit the following year. Even maidens growing quite in the open will branch and mature sufficiently to flower the following spring.

Recently I was shown some strong healthy trees against sunny open walls that had not nearly covered their allotted space, and asked how to treat the leading growths. These latter were branching freely, and I had no hesitation in advising a retention of a few well placed for laying-in, and the removal of the rest. The leading growths have, as a rule, abundance of room, and so also have the shoots laid in from them, and it will be a very sunless summer indeed if the latter fail to mature properly. Occasionally one or two first-formed growths take too strong a lead, and unless checked a lop-sided tree may be the result. Instead of reserving these to their full length, cut them back at once to where the wood is firm. This will largely divert the sap to parts of the tree more in need of it, and the two or three shoots that are soon put forth by the pruned growths will never be so strong as the parent growths, and are more likely to fruit than are the rank growths not summer pruned. Sappy shoots would in many cases have been removed with advantage, those with a little experience detecting them before they are many inches long. If a growth is wanted from near where they start, the timely removal of extra strong central shoots would have been the means of starting a less vigorous shoot from one of the outside wood buds.

I am aware that there is nothing very novel in this, and am equally well aware that many readers of the *Journal of Horticulture* are still inclined to move a little too cautiously in the matter of training Peach and Nectarine trees.—W. IGGULDEN.



ODONTOGLOSSUM PESCATOREI LA PERFECTION.

VERY beautiful indeed were the many *Odontoglossums* staged at the recent Temple show, and the form of *Pescatorei*, shown by Mr. Ch. Vuylsteke, and named *La Perfection* (fig. 89) was amongst the foremost as regards quality. The flower was of exceptionally good form, the ground colour being white very

delicately suffused rose in a few places. The spots, deep rosy purple in colour, greatly enhanced the general effect of this handsome form, which received an award of merit.

EPIDENDRUM POLYBULBOUS.

MANY of the smaller growing and flowering species belonging to this genus are in rather bad odour with growers, and it is true that some of them are weedy in appearance and very indistinct and unattractive in colouring. The present species is, however, well worthy of a place in representative collections, and especially on account of its free-flowering character. A small plant I saw growing in a hanging basket was crowded with small, starry, violet purple and white flowers.

The plant is small and creeping in habit, the rhizomes being sparingly set with tiny pseudo-bulbs, each bearing a pair of very



FIG. 89.—ODONTOGLOSSUM PESCATOREI LA PERFECTION.

small leaves. It thrives well apparently near the door in the Cattleya house, and on account of its habit it must be pegged down to the surface of the compost. It has been a long time in cultivation, and appears to be a widely distributed plant in and around Mexico, probably also Jamaica, for I believe Mr. H. W. Ward of Longford Castle imported it from there some time ago, but whether collected wild or from a botanic garden I am not sure.

STIMULANTS FOR ORCHIDS.

The practice of using manures of various kinds for Orchids is a subject that has been freely discussed from time to time in the horticultural press, and naturally divergent opinions are held by cultivators. That the practice is right, when all other details are carried out satisfactorily, there is no denying, but it is very easy to run to extremes, especially with the epiphytal section.

When writing of *Dendrobium nobile* recently "B. W." advised the use of loam in the compost, bones being mixed with it, and liquid manure also applied. No doubt "B. W." has had good results by these means, or he would not advise them for others; but I cannot think it would be advisable, or even safe, for beginners in Orchid culture to use liquid manure with such a stimulating compost, nor is it necessary if cultural skill is brought to bear. It is quite possible to grow *D. nobile* magnificently without any of these seemingly fertilising ingredients.

For all the medium-growing *Dendrobiums*, for *Cattleyas*, or any of the general run of pseudo-bulbous epiphytal Orchids I am convinced that an atmosphere more or less strongly charged with ammonia is decidedly more beneficial than the use of stimulants of any kinds at the roots. Strong-growing kinds there are, such as *Cymbidiums*, *Phaius*, *Zygopetalum Mackayi*, *Peristerias*, *Anguloas* and others that are better—both in the size of the pseudo-bulbs and number of flowers—for the application of some concentrated fertiliser, and probably such plants as *Oncidium Marshallianum* or *macranthum* may be benefited by a little when carrying a heavy inflorescence, but with the species in question and similar kinds, I am of opinion it is time and money wasted to use them to any extent.

Individual cases of successful cultivation by these means prove only that it is possible so to grow the plants. Whether they can be as well grown without them is the point, and I maintain that they can, other conditions being right. With regard to the best fertilisers for the other class of Orchids referred to, I have had good results by using well-diluted Peruvian guano. Ichthemic guano and various other fish manures have received strong testimony from many growers, but as I have used them only to a very limited extent I could not say whether they are in any way superior. A good change from the foregoing will be found in steeped cow-manure diluted until the water is hardly stained, and clarified soot water in equal proportions.

Liquid manure made from horse droppings, according to my experience, is the reverse of beneficial applied to the roots, though as an agent for supplying ammonia to the atmosphere it is first-class. Another point where I can hardly agree with "B. W." is in regard to watering immediately after repotting. He advises a thorough watering to settle the soil about the roots. As far as I have seen, the compost for Orchids generally, *D. nobile* included, settles itself only too quickly, the chief difficulty being found in keeping it in an open and aerated condition.—H. R. R.

HOME-GROWN LILY OF THE VALLEY.

EARLY forcing is an important phase of a gardener's duty, and by superior art applied in growing plants for this purpose, flowers of numerous kinds are produced in profusion quite out of their natural season. Many that a few years ago were thought to be proof against the forcer's powers have been found to adapt themselves admirably to these conditions. Their name is legion, and amongst all the flowers which swell the number none is more popular than the Lily of the Valley. It is perhaps no exaggeration to say that in the growing and forcing of these the florist's art is displayed to a greater extent than in any other.

Perhaps the great public demand for Lilies is in a measure responsible for this, as whenever there is a clamour in the markets for any particular flower means are surely found to supply it. Such is the case with the one under notice, and to supply the English market with crowns assorted and suitable for forcing, Lily of the Valley growing in some parts of the Continent is quite an industry. The forcer's power is then brought to bear, with the result that by careful arrangement fine blooms are abundantly produced, and placed in the markets from some weeks before Christmas until they flower naturally out of doors. In almost every establishment in the country, large or small, Lilies are forced in some cases by the hundred, and in others by the thousand; and so general has this mode of cultivation become that any notes on it would almost appear superfluous.

It is, therefore, to the growing of the Lily of the Valley under its natural conditions that I will confine these remarks. Strange as it seems, it is nevertheless true, that in many instances the interest in this charming flower appears to cease at the close of the forcing season. Perhaps it may have never occurred to some readers in how few establishments outdoor Lilies are really grown. True, they may often be seen eking out a miserable existence in some out of the way corner of the kitchen garden, or perhaps making faint endeavours to bloom under some dense shrubbery; but as for being cultivated, that is a thing unthought of. Many are planted in such positions as above referred to, and left year after year without a thought of giving the attention due to them, until after abstracting all the supporting properties from the soil they either produce weak, dwindling spikes, which are hardly worth the trouble of gathering, or else they become so matted together that flowering becomes a thing impossible.

That outdoor Lilies pay well for the small amount of attention and labour that it is necessary to bestow on them is amply proved in the large numbers of magnificent flowers that are produced in establishments where they are considered worthy of this little extra care. By the systematic splitting of crowns and replanting it is also surprising the rapidity with which they will multiply, and for the benefit of anyone who may be desirous of effecting this the following notes may prove useful. In no aspect are they out of place, but for supplying early flowers a position near a south wall is undoubtedly the best. A bed with a north-easterly situation is suitable if it is desirable to keep them in bloom a considerable time; and last, but not least, a little shelter is necessary, such as would be afforded if planted in the shade of bush or pyramid fruit trees serving the purpose admirably.

If the space is at disposal it is a good plan to plant a few here and there as accommodation will permit. In commencement beds of rich soil should be prepared in which has been incorporated some good manure. In the autumn, as soon as the foliage dies off naturally, the clumps should be divided into small tufts, with, say,

two or three crowns to each, shorten the long roots with a knife, and plant them about 9 inches apart, in rows in the prepared beds and the same distance between the rows, taking care that the crowns are left just exposed above the ground. It is extremely necessary that the soil be made firm by trampling round each one, and it is a good plan to make each bed about 4 feet wide, leaving a path of about 15 inches between.

In the following and subsequent autumns after planting they will require top-dressing with well decayed manure, and the sooner this operation is performed after the foliage is off the better. Provided all conditions are favourable, in three years after planting, the beds, whether large or small, will be thickly covered with crowns, when some of them then may be taken up and replanted, following out the same process as before, but if placed again in the same position the ground should be well manured previously. As in the case of all other plants, however, change of ground is in every way desirable.

Though home-grown Lilies subject to the above treatment are not equal to Berlin crowns for forcing, still they are very satisfactory, and if clumps are cut out with a spade and placed on a gentle hotbed to come in flower in March or April, they produce fine blooms, together with abundance of bright green foliage, which is very acceptable. It is also an advantage to let some of the crowns grow quite thickly together, as in a hot, dry season, the foliage forms a means of protection to the flowers, but, on the other hand, should the weather be wet, the blooms often decay from the same cause.

By paying attention to the points recorded above, it is surprising what a large number of fine, substantial flowers may be obtained from a small space of ground, by which it may be seen how they repay for a little care and attention in cultivation.—G. H. H.

[We have recently received a box of Lilies grown as described, which gave ample evidence of good culture, many of the spikes, clothed with large bells, being 7 inches in length.]

ATMOSPHERIC MOISTURE.

PARCHED ground, drying winds, and a dry hot atmosphere—conditions which at the time of writing prevail throughout the greater part of our country—seem to indicate that the heading of this note is a delusion. Indeed it is, so far as the bulk of vegetation in the open air is concerned, but if the stamp of high culture is to be apparent among plants and crops grown under glass, it is absolutely necessary during the prevalence of tropical weather that special attention be given to the maintenance of a certain amount of atmospheric moisture. Experience teaches practical cultivators that unless these matters are attended to satisfactory results cannot be obtained. Why this is so is a matter which has led to much discussion, and a certain school of theorists have maintained, with all the energy and emphasis they could command, that the leaves of plants are capable of absorbing moisture from the atmosphere, while on the other hand the majority of plant physiologists deny that this is possible. Be that as it may, we know we are on safe ground in assuming that if leaves do not absorb moisture from the atmosphere they are very much benefited by being surrounded with atmospheric moisture, because it prevents the too rapid escape of moisture through the pores of the leaves.

Here, then, we have a safe basis to start on, and the next point to be considered is best practical methods of maintaining the requisite degree of atmospheric moisture. The syringe is, in many instances, the most useful of all appliances for this purpose. In very hot weather it is, however, necessary to use water in greater quantities than could be conveniently done with a syringe; here the watering can, with a coarse rose attached, may with advantage be brought into use for damping the floors and walks of plant or forcing houses, vineries or pits.

In addition to this damping of walks, stages, and other available spaces several times daily, we have to consider the matter of damping the foliage of various kinds of vegetation, and in this direction a good deal of discretion is necessary, because many plants which delight in a moderately moist atmosphere (providing it is accompanied by strong light or sunshine) are more satisfactory when syringing is not regularly practised. Pelargoniums of various sections bear out this statement, at least those that are grown for the beauty of their flowers rather than for the varied markings of their leaves.

Experience, and that alone, will teach the cultivator exactly which plants may with advantage be copiously syringed, and which produce the most satisfactory results when damping between them only is practised. A good rule to follow in the matter, under the guidance of common sense and observation, is to syringe freely all plants that are grown especially for the beauty of their foliage

or their graceful habit, as well as those that are subject to the attacks of red spider and thrips.

Both the damping of houses and the syringing of plants—practice of the greatest utility when carried out under the right conditions—have by many been greatly abused; but I for one fail to see why this led to a wholesale condemnation of the practice such as some writers indulge in, because it is well nigh impossible to mention any gardening operation which, if conducted without the exercise of intelligent judgment, will not lead to disastrous results.

In this matter of atmospheric moisture our course is so clearly defined that nothing but downright thoughtlessness or indifference can lead to failure. We know perfectly well that with a dry, hot atmosphere in the open air regular damping of plant houses must be resorted to, so that the extremes between aridity and a continual state of dampness be avoided. When under the influence of bright sunshine and high temperatures moisture dries up quickly, the time for the free use of water is apparent, and just as clearly ought it to be understood that with a lowering temperature and less rapid evaporation the distribution of moisture ought to be proportionately lessened.

Through the summer months many of the occupants of green-houses are placed in the open air, and other plants intended for flowering under glass during the autumn and winter are also grown with only the canopy of heaven above them. Syringing once or twice daily is quite necessary in such instances to keep them in a healthy condition; indeed a free use of the syringe in hot weather with many of them makes all the difference which is apparent between vigorous, healthy plants and "starvelings," while the present hot weather continues. Young gardeners cannot have too strongly impressed on their minds the necessity of applying abundance of water to the roots of plants, and of using every effort also to surround the leaves with atmospheric moisture.—H. D.

VIOLAS IN THE MIDLANDS.

FOR the present purpose Pansies are included in the above heading, for the sufficient reason that all Pansies are Violas, though all Violas are not Pansies. Last year a very successful show of Violas, large and small, was held in Birmingham, and in conjunction therewith a conference of gardeners. The proceedings of this conference were printed in the form of a neat pamphlet, illustrated with several portraits, and as a few copies are left persons who are interested in the flowers would find 6d. well spent in obtaining a copy from the President, Mr. W. Cuthbertson, of Rothesay, for it contains much information and selections of the best Violas in cultivation. There has been another show and conference—namely, on Thursday last, the 29th ult., and in the same place, the Botanical Gardens, Edgbaston, Birmingham, and both are eminently worthy of notice.

THE GARDENS.

Edgbaston is a western suburb of the great city—the Viola city we had almost said—of the Midlands, and a beautiful suburb it is, the main roads passing as it were through avenues of trees which shield many mansions and villas. The gardens are not extensive—about 12 acres—but so undulated, disposed and diversified as to appear much larger. They were formed and planted by Loudon, are supported by subscriptions mainly, and have been managed (culturally) by Mr. W. B. Latham for the last twenty-seven years, and the managers are also fortunate in having as Hon. Secretary the genial and accomplished Professor Hillhouse. The glass ranges are substantial, well arranged and excellently furnished, and the grounds, as just indicated, picturesque. In one of the houses a number of Schizanthuses in 6-inch pots displayed myriads of daintily pencilled flowers; such plants would add a charm to private gardens, and might be had in hundreds, as they are simply raised from seeds sown in September. In other structures decorative Pelargoniums, Calceolarias, Lilium Harrisii, Gloxinias (very fine), and Streptocarpuses were admirably represented, besides Orchids and various fine-foliaged plants in excellent condition. In the grounds beds of Violas were masses of beauty, notably those occupied by that effective bedder Dean's True Blue; and a new Alpine garden, opened on Thursday by G. Kenrick, Esq., will prove a valuable acquisition. It has been formed, and is in the course of being planted by Messrs. Backhouse & Sons, under the superintendence of Mr. R. Potter. A commemorative tablet informs us that it is to be known as the "Hugh Nettlefold Alpine Garden" in recognition of the worth of a gentleman who was chairman of the Gardens Committee, and in all respects an estimable man. Rocks, dells, bogs, and water are represented, and the entire work is of considerable magnitude.

THE SHOW.

The Pansy and Viola show was displayed in the "Exhibition House," a glass-covered structure, which was fully too hot for the blooms on the brilliant sunny day. It was mainly a competitive display, and

famous growers entered the lists. Fancy Pansies were extensively and finely represented, and Violas delightfully imposing, but Show Pansies not equal to exhibitions of them a quarter of a century ago, and it would almost seem as if the flowers were on the down grade. A great, and indeed a glaring fault, in the competitive stands of Pansies was the general absence of names of the varieties, and this in spite of one of the printed regulations, that "all Pansies and Violas must be legibly and correctly named;" not should be, but "must." Yet not one bloom in a hundred had a name attached when the Judges made their awards. The ignoring of the rule is inexcusable, and it ought to either be enforced, expunged, or modified in future, but by all means enforced, as the absence of names deprives the show of half its interest, completeness, and instructiveness. That naming can be done was evident by the large collections of Violas from Messrs. Dobbie & Co. and Mr. Pye, as well as competitive stands by Mr. Rowberry; and further, when Professor Hillhouse made it known that medals would be given to some competitive stands of Violas if names were attached, these were added forthwith, as they might have been, and ought to have been, in every stand competing for a prize. Here endeth the merited grumble, and perhaps some of the exhibitors may add "not before time."

Referring to the competition, we found in class 1, for forty-eight Fancy Pansies, dissimilar, six exhibits, forming, as may be imagined, a brilliant display, and the more so since all the stands were good, and some so close in merit that the Judges were compelled to examine the blooms with extreme care, and they were an hour in arriving at a decision. The first prize (which carried the silver medal) was won by Mr. John Smellie, Busby, N.B., with not the largest blooms, but those characterised by substance and clearness in colouration. Mr. Alexander Lister, Meadowbank Nursery, Rothesay, was second, and as he was only defeated by one point, was worthily awarded a bronze medal in addition to the prize. Mr. Alexander Bailey, jun., Silkworth Lane, Sunderland, was placed third, with perhaps the largest blooms of all, some of them 3 inches in diameter, but the colours of several were not clearly defined. Mr. John Sutherland, Victoria Nursery, Lenzie, Glasgow, was adjudged the remaining prize for stands of richly coloured blooms of moderate size, yet distinctly meritorious. In class 2, for twenty-four blooms, there were also six exhibitors. Mr. John Sutherland was the premier, followed by Messrs. Bailey, Lister, and Messrs. W. Paul & Co., Bridge of Weir, N.B., in the order named. All the stands were good, and there could have been few points of merit between any of them.

In class 3, for twenty-four Show Pansies, there were five exhibitors. The blooms were naturally smaller than in the preceding classes, yet most of them clean, many very charming, though several too small. Messrs. W. Paul & Co. well won the first position, followed rather closely, however, by Messrs. Alexander Lister and John Smellie, to whom the remaining prizes were adjudged in the order named. In class 4 there were also five exhibitors, but in a class like this for six Fancy Pansies of one variety it is, in the absence of the names of the flowers, hardly worth recording the names of the exhibitors, yet we give them—Messrs. Lister, Smellie, and Paul, though it shows the absurdity of staging unnamed flowers. It was subsequently found that the winning blooms were those of a fine new variety, Colonel M. R. G. Buchanan. In class 5, for twelve seedlings of Fancy Pansies, the prizes went to Messrs. Smellie and Lister, but the blooms were not named. In class 6, for twenty-four sprays of Violas, dissimilar, six blooms in a spray, two very attractive collections were staged by the exhibitors just mentioned, who were placed first and second respectively. Varieties not named. The classes referred to were open to all, and we now turn to the amateurs' section.

In the class for twenty-four Fancy Pansies, dissimilar, there were seven exhibitors. Mr. John McFarlane, 68, Gordon Street, Glasgow, secured the leading position with very fine blooms, but without names. Mr. Thomas Naden, 6, High Street, Elvaston, Derby, was a good second with properly named flowers, of which John Coutts, J. Allen, J. Downie, Mrs. R. Thompson, Mrs. E. L. Carnegie, and Maggie Watson were very good indeed. Mr. A. C. Christie, Shifnal, Salop, third. Five exhibitors competed with eighteen blooms. First, Mr. T. Naden with named blooms similar to those in his twenty-four stand. Second, Mr. Christie; third, Mr. W. Whitehead, Churchgate, Leicester; fourth, Mr. T. M. Eglington, Trinity Road, Birchlands, Birmingham. Seven stands of six blooms were staged. First, Mr. T. Naden with Tamworth Yellow; second, Mr. A. C. Christie with D. Rennie; third, Mr. Eglington with Tom Travis. In the class for twelve blooms there were nine exhibitors. First, Mr. J. McFarlane; second, Mr. T. Naden; third, Mr. A. J. Rowberry, The Crescent, South Woodford, Essex; fourth, Mr. Christie. Mr. Rowberry named his blooms, and his W. H. Clarke was one of the best in the show. Very good also were Mrs. Grossart, Rev. Gresley, Tamworth Hero, and Ceres. With six seedling Pansies, Mr. McKee, 18, Dougall Street, Belfast, was first, and Mrs. R. Lovatt, Chetwynd, Newport, Shropshire, second.

In the class for twelve sprays of Violas, six in a spray, first Mr. A. J. Rowberry, with delightful sprays, with foliage, of Cottage Maid, Craigie, Lemon Queen, Blue Gown, Christiana, Countess of Hopetoun, Blush Queen, Princess Beatrice, William Neil, Sweet Lavender, Duchess of Fife, and Amazon Queen—a new variety of the Peter Barr type, colour golden chestnut. Second, Mrs. Lovatt.

Certificates were awarded for the following:—*Viola A. J. Rowberry*.—A clear, smooth, soft canary yellow, without spot or streak; a medium-sized flower. Exhibited by Mr. G. McLeod. *Viola Prince of Wales*.—A larger flower than the preceding and of a deeper yellow, but with the faintest of faint ray lines. Shown by Mr. Andrew Irvine, Tighnabruich. *Fancy Pansy Col. M. R. G. Buchanan*.—A large bloom of good substance and excellent symmetry; body colour dense maroon,

upper petals shading to violet; edging bright yellow. Exhibited by Mr. Alexander Lister, who won the first prize also for six blooms of it in class 4.

Messrs. Dobbie & Co. exhibited in their best style a hundred varieties of *Violas* in sprays, consisting of nine blooms of each. They included the leading varieties in commerce, as well as upwards of thirty of their own raising. It may be said that all the varied hues in which the *Viola* is robed were represented in this fine collection (silver medal). Mr. Septimus Pye, Catterall, Garstang, had also a large collection. In this case twelve blooms being arranged in a spray, and being large and well displayed had an imposing effect (silver medal).

An award of merit was granted to Mr. Wm. Sydenham, Tamworth, for beautiful table decorations of *Violas*, the flowers being arranged in rustic-fashioned zinc tubes, a similar award being granted to Mr. Robert Sydenham for various designs of the same character, furnished with Poppies, Cornflowers, and Sweet Peas, all very beautiful; a bronze medal was also granted to the first-named exhibitor for his entire exhibit, including many fine Pansies and choice *Violas*.

The exhibits were arranged on tables covered with maroon serge chosen by Professor Hillhouse; it had a much better effect than the orthodox green baize, and showed the flowers to advantage.

CONFERENCE.

A Conference of *Viola* growers was held in the Library of the Gardens on Wednesday afternoon under the chairmanship of the President, Mr. W. Cuthbertson. Among those present were Professor Hillhouse, with Messrs. A. J. Rowberry, A. C. Christie, A. Ireland, R. Sutherland, Wm. Sydenham, James Sinkins, R. Potter, E. Bliss, W. Gardiner, G. Wilson, W. H. Gabb, and R. Dean. After reading letters of apology for inability to attend from Dr. Stuart, Mr. Needs, and Mr. McLeod, the President alluded in sympathetic terms to the lamented death of Mr. William Dean, who had made all the arrangements for the present show, Mr. Cuthbertson concluding by proposing the following resolution:—"That this meeting expresses its deepest sympathy with the widow and family of the late Mr. William Dean, and deplores the loss sustained by horticulture through his death."

The President referred to the great devotedness of Mr. Dean, his disinterestedness, his willingness to help others, and above all his greatest virtue modesty, in which he resembled the flower he loved so well. The resolution was seconded by Professor Hillhouse, supported by Mr. Rowberry, and passed unanimously. After some allusions to the extension of *Viola* culture, the Chairman stated that as nothing could advance the flower so much as placing before the public reliable information, he would ask some of the gentlemen present to read short papers.

Professor HILLHOUSE entitled his paper "Some Notes on the Genus *Viola*." It was really a valuable, historical, and scientific disquisition, in great part oral, and was listened to with the close attention it undoubtedly merited. The Professor first dwelt on the wide geographical distribution of the species, and then with the aid of diagrams made clear the structural character of the flower and the innate obstacles provided within itself to self-fertilisation. Several coloured plates were also shown of the species which in more or less degree had exerted influence in the production of the present race of Pansies and *Violas*. He said the Pansy was cultivated by Evelyn in 1687, and remarked that Gaspard Bauhin recorded in 1620 that beautiful varieties were cultivated in gardens by the curious. The Professor described the Pansy as a protean plant, and hence the issue of many forms which for want of a better expression he would call "natural hybrids," and therefore material is provided for further advances, which should be effected on systematic and scientific lines.

Mr. R. DEAN read a paper on "Old *Violas*." He traced the popularity of the *Viola* as a garden flower to the practice and writings of the late Mr. John Fleming of Cliveden about 1854. He raised Cliveden Yellow, Cliveden Purple, and Cliveden Blue, which were for a long time famous. He obtained Cliveden Blue, it is said, from Russia, but now probably lost to cultivation. He also grew the Great Eastern, raised by Mr. Hooper of Bath, as well as the quaint and distinct Magpie, probably the oldest variety now grown, and said to have been found in a corn-field in France. Mr. John Wills' experience with *Viola cornuta* about 1863 was referred to, also the work of Mr. Grieve, Mr. Baxter, and others. Mr. Dean further stated that his Blue Bell, which is found the best dry weather *Viola* at Syon, came as a chance seedling in his garden at Ealing, in which no *Violas* were grown. He brought under notice the origin of several other once popular varieties, concluding with a reference to the True Blue as raised by his late brother, and which might be left to commemorate him for many years to come. This no doubt it will do, as though it partakes somewhat of the Pansy character, its colour and floriferousness render it effective in masses, as beautiful beds in the Birmingham Botanical Gardens afforded good evidence.

"*Violas* in Surrey," a paper contributed by Mr. E. Burrell of Claremont, embodied his experience, which was altogether satisfactory. His method of culture was to enrich the ground and plant in October, and then, with mulching in April, he finds the plants grow freely and flower continuously. He mentioned as excellent varieties Archie Grant, Crimson King, Favourite, White Swan, Lillas, Annie King, Mrs. Bellamy, Violetta, and Ardwell Gem. He evidently did not favour the fanciful name of "Tufted Pansies," an opinion that met with unanimous approval.

WINTER CULTURE OF *VIOLAS*.—Mr. Rowberry read a short but very useful paper on this subject, in which he strongly advocated inserting cuttings in July or August, then when rooted disposing the

plants 3 or 4 inches asunder in nursery beds in an open yet somewhat sheltered position, finally transferring the plants to their flowering quarters as early in the spring as possible. In that way he lost few plants even during the severest frost, and had most satisfactory displays of flowers throughout the summer. Mr. Rowberry also read a paper from Dr. Stuart, giving the history and description of the many charming varieties with which the great amateur's name is identified. Considerable discussion ensued on the reading of most of the papers, and the Conference, which was very successful, closed by the election of Mr. Rowberry as President, Messrs. G. McLeod and W. Sydenham Vice-Presidents, Mr. Cuthbertson as Hon. Treasurer, and Mr. R. Dean as Hon. Secretary for the ensuing year.

TAMWORTH SHOW.

FOLLOWING the Birmingham display a Pansy and *Viola* show was held on Saturday, June 1st, in the Town Hall of the ancient capital of Mercia. The hall was built nearly 200 years ago by Thomas Guy, the founder of Guy's hospital in London, who represented Tamworth in Parliament. A portrait of the great benefactor adorns the room, as does one of another renowned man of more modern date, the great Sir Robert Peel, who also represented the borough in the House of Commons, and whose statue is conspicuous in the market place adjoining the Town Hall. Tamworth is not a picturesque, but, what is better, a prosperous town of some 7000 inhabitants, and of late years has become a Pansy and *Viola* centre through the enterprise of Mr. William Sydenham. It was through his efforts, in conjunction with the late Mr. W. Dean, that a show was held last year, and again this season. The present show was not large, nor intended to be, as Mr. Dean desired that competitive classes for the northern growers should be confined to Birmingham, and the Tamworth schedule was drafted to incite local interest more particularly. Especial provision appears to have been made to display the decorative effect of Pansies and *Violas* in the form of bouquets, wreaths, table decorations, and floral designs generally, tempting prizes being provided for that purpose. It would seem, however, as if a watching and waiting policy had been adopted, and now that ideas have been afforded on which action can be based brisker competition may be expected another year.

Messrs. Perkins of Coventry showed the way in these decorative classes, and took all the chief prizes with beautiful exhibits. Their shower bouquet was a study in yellow and crimson, the *Viola* and Pansy blooms being relieved by Ferns, Smilax, a few Croton leaves and *Caladium argyrites*. The basket of Pansies was of a similar character, and this with the double triangle of yellow and purple Pansies, also a splendid wreath of the flowers arranged in Fern and *Asparagus plumosus nanus*, not only made a show in themselves, but demonstrated the charming adaptability of the flowers for such purposes. Mr. Johnstone, Hunts Hall, showed a flowing bouquet, also beautiful sprays of *Violas* on velvet stands; and Mr. R. Hannah, Atherstone, had a pleasing arrangement of Pansies on a large shield tastefully associated with Ferns and *Selaginella caesia*. This was the gentleman who won the silver medal for the essay which we published last week. This medal was on view, and elicited high approval; it was really a novel and chaste design in silver and gold—one of the most beautiful medals we have seen, and Mr. Hannah has reason to be proud of its possession.

Mr. Sydenham, though he did not compete for any prizes, contributed most effectively to the general display. His six stands of table decorations, some of them umbrella-shaped, others pyramidal about 2 feet high, as furnished with white and purple *Violas*, white and lilac, purple and gold, and pure white flowers respectively, each stand comprising some hundreds of blooms charmingly associated with Ferns and Smilax, were worthy of a position on any dinner table or drawing room in the kingdom. They were disposed down the centre of the table, the sides being occupied by sixteen trays of Fancy Pansies, twelve blooms in each, with between seventy and eighty triplets of choice *Violas* across the ends—altogether a splendid exhibit, for which a silver medal was adjudged, and it was worthy of a gold one.

A similar award was worthily granted to Messrs. Dobbie & Sons for a beautiful and extensive display of *Violas*—nearly a thousand blooms, these embracing the best varieties in cultivation; but more space was needed for showing them to the best advantage.

Mr. R. H. Bath, Wisbech, offered prizes for fifty plants of *Violas* grown in pots or boxes. Mr. Sydenham was the only exhibitor, his first prize group of plants forming a pleasing change from the surrounding exhibits. If prizes were offered for say six plants, and these raised in July and established in 6-inch pots early in the autumn, plunged over their rims and grown in the open, they ought to "lift" and exhibit sheets of bloom, thus showing the adaptability of the varieties for effect in masses. Few growers could show fifty pots, but half a dozen would be no great demand. Prizes were offered for the best plant of Fancy Pansy and best *Viola* grown in pots, these being won by Messrs. Hannah and Pemberton, and they indicated what may be done, but done better, with *Violas* at any rate, in the future. It ought also to be possible to show *Violas* in bunches, say twelve stems, with flowers and foliage as grown, to form a bunch. Three, six, or twelve bunches in a class would afford scope for exhibitors, and bring out varieties suitable for garden decoration.

In the orthodox classes for Pansy blooms in stands there was a most creditable display. With twenty-four blooms, Fancy, Mr. T. Nadin, Derby, secured the first position, staging, among others, fine examples of Mrs. D. Johnson, W. H. Ashford, J. Coutts, Miss Hudson, Mrs. Lister, Mrs. Thompson, and Tom Travis. Mr. R. Bolton, jun., Carnforth,

was an excellent second. Mr. Nadin was also first with eighteen blooms, followed by Messrs. Bolton and Hannah. Mr. W. B. Fowler was first with both twelve and six blooms, the latter comprising Tamworth Yellow, Maggie Watson, J. H. Thornley, Miss Pattinson, E. H. Gabb, and Jas. Stafford. Messrs. Whitehead, Nadin, and Bolton were also successful in those well-contested classes. With six blooms of any variety Mr. Nadin was easily first with the grand Pansy, Tamworth Yellow. Other prizetakers in the different classes were Mrs. Lovatt, Rev. H. Watson, and Mr. G. F. Meers; but on the whole the finest Pansies in the hall, in the amateurs' competitive classes, were shown by Mr. Nadin, and the best Violas by Mr. Pemberton. No pretence is made to give the awards throughout the exhibition.

Mr. McKee, Belfast, was awarded a first-class certificate for a new *Fancy Pansy Mrs. Gamp*, an effective symmetrical flower of good substance, dense purple in colour, edged with creamy white. A certificate of merit was also adjudged to Mr. Allison Green, Richmond Park Road, Kingston, Surrey, for various appliances for exhibiting flowers, his method of wiring without piercing the calyx being very simple and good. Numbers of visitors inspected Mr. Sydenham's garden, and enjoyed the floral feast. There, after all, was to be found the great show, of which a little remains to be said another day.

Relative to certificates, the plan adopted at Birmingham is a good one. Professor Hillhouse is of opinion that first-class certificates should only be awarded for new varieties of plants, flowers, fruit, or vegetables, and that other awards should be made for meritorious exhibits of a different nature. Thus "special awards of merit" are granted, or "special cultural awards," according to the nature of the objects that merit recognition. The distinction is appropriate as well as intelligible, and it would be well if it could be generally adopted at horticultural exhibitions.

EXPRESS GRAPE GROWING.

I HAVE no intention of continuing the discussion of this subject further, but I would just like to remark that it is difficult to see where Mr. Innes (page 478) got the "abundance of fine, healthy, fibrous roots" out of 3-inch pots! I have again to repeat that, all things considered, the performance of these straw-like Vines, planted in the middle of August out of 3-inch pots, is really remarkable. The crops they bore the next season were wonderful, and would have been splendid had the Vines been planted in the best possible condition and at the most suitable time.

However, as there seems no doubt but that things happened as described by Mr. Innes, we must regard these wonderful little Vines with the greatest respect, as being able to rise superior to all difficulties, and to reward their owner with abundance of fruit in short space of time. Long may they continue to flourish, and no doubt their grateful owner will always be extra good to them, seeing that they rewarded him so soon for the little attention they received before being planted. I hope Mr. Innes will continue to grow the best quality of Grapes possible. At the same time I would caution all who are about to go in for Grape growing not to depend on producing the same results so soon from straw-like Vines planted late in the season, even if the borders and situation be all right and the autumn bright and warm.

Such good luck does not always attend the culture of the Vine, and many people will, no doubt, be content if they get a crop half way up their houses off their permanent Vines the first year after planting, especially if they have had to plant small canes out of small pots, and late in the season.

Mr. Innes takes exception to my remarking on the "poor little starved Vines" that he planted. I have only to remark that they must have been very little not to have been starved by being kept in 3-inch pots till the middle of August. It is impossible that a Vine could be otherwise than both starved and little by such treatment.—JOHN THOMSON, *Clovenfords*.

THE articles under the above heading that have recently appeared in the *Journal of Horticulture* must have proved interesting to many readers, as showing what the Vine is capable of producing in a commercial line under sound management.

The success of Mr. Innes is the greatest stride in this direction. When we consider that the border in which his Vines were planted consisted simply of a strong clayey loam, with the moderate addition of about 20 lbs. of manure per cubic yard, the success of these small Vines in the time stated is remarkable. I could understand the success of these Vines better if they had been planted in a compost in which a large amount of manures had been mixed, to get all possible fruit from them for a few years irrespective of their constitution for the future.

I note, however, Mr. Taylor in his practical treatise, "Modern Grape Growing," now running through the pages of the *Journal of Horticulture*, recommends a proportion of bones and bone dust. That is another starting point. Given a good soil for producing Grapes, and strong canes only, moderately cropped the season after planting and well looked after, I see nothing to hinder heavy crops of Grapes of good average quality being produced for an indefinite length of time. The articles lately written on this subject will probably cause growers in private gardens where heavy crops are required to think if they cannot advance a little.

But if high-class Grapes are in request it would be safest to work on a steadier footing, for after all it is the exquisite finish that is so puzzling to obtain—that unflinching test of quality. Of course growers for sale work on entirely different lines to those in private gardens. The former

have to put Grapes on the market that they can grow profitably, and which come within the range of the means of the buyer. The latter are often expected to produce them of superlative quality without regard to profit.

Mr. John Thomson does not seem in love with Black Alicante. Probably from his point of view he is right, it not being large enough to satisfy the British public. This Grape I look on as a gardener's friend; always to be relied on, and when well grown a most excellent winter Grape. Gros Colman is a Grape that does not usually finish kindly, although it is very imposing, and most refreshing when quite ripe. To persons who do not care for the more sugary Grapes it is very agreeable.—J. J. CRAVEN, *Allerton, Liverpool*.

A VERY interesting controversy has been going on for some time in your *Journal* under the above heading, prompted in the first instance by your notice of Mr. Colebrook's great success in Grape growing, but this instance of speedy cultivation seems to have been eclipsed by Mr. Innes so far as regards the short time in which the young Vines were brought into bearing, and I have no doubt the list of growers who have departed from the orthodox system so practically written of by Mr. J. Thomson might be much augmented.

I have long ago convinced myself that it is quite unnecessary to follow in the footsteps of our forefathers in the matter of growing and cropping young Vines, and if I were compelled to treat Vines with a view of profit, I doubt not but that I should go even farther from my early teaching than I have yet trespassed, for to quote Mr. Innes, I have found the Vine to be a most accommodating subject, and capable of producing first quality Grapes, under apparently very adverse conditions, when there has been a cultivator at the helm.

In gardening how frequently we hear of really splendid results when just the opposite is anticipated by the anxious custodian. Only the other day at the Manchester show I inquired of a noted gardener how his *Mascévallias* were looking. He replied, "Never better, notwithstanding that large icicles hung from the roof to the pots for weeks in January." Is not this a state of things directly opposed to the desire of any orchidist, but which could not be avoided? Yet such unlooked for hits seem to teach us not to follow too closely in the old groove.

When reading Mr. Thomson's last letter, I fancied that I could detect a suspicion that Mr. Innes' productions were not of the best quality. Mr. Innes takes a strong position by leaving his successes to speak for themselves. Mr. Thomson will admit that nothing but really first-class Grapes come to the front at such exhibitions as Manchester, Derby, and Earl's Court. Medals and prizes won at these shows are decidedly awards of which any grower for market may well be proud, for they come in direct competition with the productions from gardeners who can and do crop much lighter, and in many cases give better attention to their houses generally.

Living in the same county as Mr. Innes I have had opportunities of seeing the Vines when under his management, and was always much struck by his unvarying successes. That he thoroughly understood the Vine and its requirements is beyond a doubt, and let his poor little ones, which became famous, have what suited them.—WM. ELPHINSTONE, *Shipley*.

MR. INNES, in his remarks on "Express Grape Growing," page 478, makes a curious mistake in reference to the crop of 2700 bunches in a house of 300 feet long, referred to by "Market Grower." He states that at 2½ feet apart there must have been 240 Vines; that is, of course, an error, as really there could have been only half that number—120. Now, the difference between Mr. Innes' calculation and the correct one is that whilst he allows but eleven bunches per rod of 12 feet, there would be twenty-three; and the weight per each rod about 40 lbs., at a moderate calculation, would give a total of 4800 lbs., certainly a very heavy crop, and at 2s. per pound worth £440. That puts the matter in a very different light.—EXAMINER.

THE VINE AS A TOWN PLANT.

THE Vine (*Vitis vinifera*) is the only fruit-bearing plant that I know of which can be cultivated with tolerable success where other fruits, such as Peaches, Nectarines, Apples, and the smaller fruits become a total failure, and to stimulate a love for the cultivation of the Vine our horticultural societies might do worse than to offer some good prizes for Grapes that are cultivated, say, within a radius of five or six miles from Westminster.

It is astonishing that the Grape Vine should flourish in the midst of smoke, which is so injurious to mostly all other members of the vegetable world. Perhaps the physical properties of the foliage have a great deal to do with the important question of such adaptability.

Many City merchants, and not a few judges in lower Courts, have found pleasure in their town gardens, and some of them have set about the pleasant enjoyment in a most practical manner, and some of them with little or no glass can behold the purple Grape fast ripening in the summer sun while sitting at their breakfast. Surely such a pleasure might be more enjoyed.

A south aspect with merely a glass roof and verandah is all that is required for the cultivation of the Black Hamburgh. No fire heat whatever; only the glorious rays of the sun and the free air to play at will amongst the foliage. With a little attention to feeding (for the Vine has a feeding time), stopping, thinning, and training of shoots into vacant places might well be suitable, leisurely employment for a king.—A. M.



EVENTS OF THE WEEK.—The Committees of the Royal Horticultural Society meet at the Drill Hall on Tuesday next, and on Wednesday the Royal Botanic Society holds its special Floral Fête in Regent's Park. These are the only events of interest to London horticulturists.

— **THE WEATHER IN LONDON.**—The weather in London during the past week has been changeable, but, on the whole, fine. On Friday and Saturday it was very warm, with occasional light showers, Sunday being practically the same. Monday opened somewhat dull, but cleared later in the morning, and the sun shone gloriously until towards evening, when a few drops of rain fell. A drizzly rain fell during the early hours of Tuesday and Wednesday mornings, but though continuing dull, rain ceased to fall about nine o'clock.

— **ROYAL HORTICULTURAL SOCIETY.**—The next meeting of the Royal Horticultural Society will be held in the Drill Hall, James Street, Westminster, on Tuesday, June 11th. At 3 P.M. a lecture on "Rose Culture under Glass" will be given by Mr. Frank Cant. The President of the Society will also present the Veitchian Memorial medals to James Bateman, Esq., F. W. Moore, Esq., and Mons. V. Lemoine of Nancy.

— **STRAWBERRY LEADER.**—Like Royal Sovereign, I look on Leader Strawberry as an acquisition to varieties ripening after the early forced kinds, and, like its compeer, coming in to fill the gap just prior to the earliest out of doors. It may be good for forcing varieties for aught I know, but for ripening in May its success is assured. In point of flavour it is an improvement on either of its parents, and much in advance of Noble. I shall look forward to Leader taking a high position amongst Strawberry growers when the stock is further increased.—E. MOLYNEUX.

— **HARDINESS OF SCARLET RUNNER SEEDS.**—I can quite confirm all that "A Gardener" said on page 451 respecting the hardiness of Scarlet Runner seeds, and can go a little farther. I have for more than fifteen years always left my seeds on the poles as grown till planting time, in the middle of May. I have known them to be frozen for weeks together. All the seeds will grow. I am convinced that any amount of frost and the changes of the weather, wet and dry, have not the slightest effect on the seed. The poles have been standing in the same place quite twenty years, and are never taken down. This past winter ought to be a fair test, and I see they are just germinating as usual.—H. FOSTER, Watchmaker, Ashford, Kent.

— **BOTHIANA.**—Now that the excellent articles which have appeared in the *Journal* for the past few weeks under the above heading have come to a termination, allow me, through your columns, to express, on behalf of the young gardeners in this district, our heartfelt thanks to your correspondent, "An Old Boy," for the kind advice tendered to us therein. Those who intend to follow out as far as possible the only road to success, as pointed out by your correspondent, will I am sure in future years, when their wisdom and perseverance shall have earned for them honourable positions in the horticultural world, look back with feelings of gratitude to the time when they read and profited by the writings of "An Old Boy" in the *Journal of Horticulture*.—P. J. G., Warwickshire.

— **WAKEFIELD PAXTON SOCIETY.**—At the meeting of the members of the above Society, held 25th ult., Mr. B. Whiteley presided, and Mr. J. G. Brown was in the vice-chair. Mr. T. Gartery of Rotherham read an interesting and practical paper on "The Primula." He clearly and fully described how he has successfully raised these charming and useful winter blooming plants for many years past, and in detailing his mode of treatment he impressed upon professional and amateur gardeners to do everything they could to produce strong and sturdy plants. A discussion ensued on the paper having reference mainly to "the nettling effect" which the handling of a certain species of Primula had on "thin-skinned gardeners," some of whom asserted that it caused them an unpleasant sensation somewhat resembling "itch." A vote of thanks was accorded to Mr. Gartery for his essay.

— **LONDON OPEN SPACES.**—The trustees of the London Parochial Charities have subscribed out of their surplus income for the year 1895 £1000 to the funds of the Metropolitan Public Gardens Association for the purpose of promoting the purchase or laying-out of minor open spaces.

— **DEATH OF MRS. PHILIP CROWLEY.**—We learn with extreme regret of the death of Mrs. Crowley, which occurred at Waddon House, Croydon, on Sunday last, 2nd inst. Not only was Mrs. Crowley a most kind, gentle, and estimable lady, but was a devoted helper of her husband in his horticultural work, and the many friends of Mr. Crowley will deeply sympathise with him on the grievous loss of one who may be described, as far as is humanly possible, as a perfect wife. Mrs. Crowley was fifty-eight years of age.

— **MR. G. M'DOUGALL,** Gardener, Ravenna Cottage, Stirling, writes:—"Enclosed is a crimson Hawthorn sport for your inspection. I intend sending it to the next meeting at the Drill Hall, where it will be exhibited by Messrs. Wm. Paul & Son; but I am afraid that the excessive heat will have extracted all the colour. This is the fourth consecutive day that the shade temperature has been above 70°." [The variety is evidently the well-known *Crataegus oxyacantha punicea*.]

— **PARIS HORTICULTURAL CONGRESS.**—At the International Horticultural Congress, opened at Paris on Saturday, resolutions were unanimously adopted to the effect:—"(1) That the French Government should associate itself with the request addressed by the Italian Government to the Swiss Confederation, with a view of obtaining the revision of the Berne International Convention, and the free circulation between all countries signatory to the convention, of all vegetables and Vines, accompanied by a certificate of origin; and (2) that the postal administration should return to the old reduced tariff, of which periodical publications on horticulture have hitherto had the advantage."

— **DIONÆA MUSCIPULA.**—This little plant, popularly known as Venus's Fly Trap, well deserves a place in the greenhouse. The ordinary observer may look on it only as a curiosity, but to the plant lover it has, says a writer in a transatlantic contemporary, a beauty all its own. The upper portion of the leaf, which constitutes the trap, is dilated into a two-lobed irritable limb, furnished at the margin with a row of long stiff bristle-like teeth. When a fly or other insect alights on the inner side of this portion it immediately folds up and holds the insect while it makes the least motion, but gradually assumes its normal position again after the insect is killed and ceases to struggle. It is of easy cultivation, and does well in a greenhouse temperature, and should be placed in a position where it will be shaded from direct sunlight, but at the same time have abundance of light and air. First place the plants in small pots half filled with crocks, using live sphagnum moss as potting material, then place the pots, about six, in a 10-inch pan, and pack them firmly around with sphagnum, place the pan in a saucer, and keep this all the time filled with water.

— **"THE BOTANICAL MAGAZINE."**—The June number of this publication contains the following subjects:—*Crinum Schimperii* (Amaryllideæ).—The bulbs of this plant, which were sent to Kew from the Berlin Botanical Garden, came originally from the mountains of Abyssinia, where they were found by Herr Schimper some twenty years ago. The peduncles and tube are strongly marked with brown; the limb about 4 inches long, is recurved, and ends in a yellow point. *Trichocladus grandiflorus* (Hamamelideæ) is a native of the Transvaal, South Africa. The ovate leaves, when young, are a bronze brown and stellately pubescent. The flowers are white, arranged in racemes of six, each having a rose-coloured centre. *Ribes bracteosum* (Saxifrageæ).—This plant has its habitat on the north-west coast of America, from California to Alaska. The racemes are from 3 to 6 inches in length, and derive their colour from the calyx of each flower, which is a golden yellow touched with green at the tip, and red at the base. *Peraphyllum ramosissimum* (Rosaceæ).—This, which is like the former, a native of North-western America, forms the sole species of the genus. It is a shrub from 2 to 6 feet in height, with rose-coloured flowers arranged in corymbs, and so closely related to the Amelanchier as to have been confounded with it. *Rosa Luciae* (Rosaceæ).—Comes from China and Japan. It is closely connected with *R. multiflora* on the one hand, and *R. microphylla* on the other, so as to be considered by some as a hybrid between the two. The blossom is white, and its foliage lustrous, and on account of its hardiness, and appearing when other shrubs are out of bloom, has been much used for decorative purposes about the city of Boston.

— **BATTLE OF FLOWERS AT HASTINGS.**—At a meeting of the Committee held recently at the Town Hall it was announced that the Corporation had decided to assist in carrying out the project, and that upwards of £300 had been promised to the fund for defraying the necessary expenses.

— **IRIS STATELLÆ.**—This is a Sicilian variety of *Iris lutescens*, and is one of the most attractive Irises, of medium height, which flowers at this time. It has large prominent standards, tongue-shaped, and smaller reflexing falls. The flowers are of a pearly white colour, of very fine form, and most distinct. It is a fine garden variety and excellent for decoration.

— **MAY WEATHER AT DRIFFIELD.**—Mean temperature at 9 A.M., 55.41°. Wet bulb, 51.0°. Mean maximum, 61.46°. Mean minimum, 40.97°. Highest, 72.8° on the 27th; lowest, 33.8° on the 5th. Mean of maxima and minima, 51.21°. Mean range, 20.49°. Mean radiation temperature on grass, 36.58°. Lowest, 26.4° on the 5th. Rainfall, 0.60 inch. Number of rainy days, seven. Greatest amount on one day, 0.19 inch, on the 1st.—W. E. LOVEL, *Observer, York Road, Driffeld.*

— **MAY WEATHER IN SOUTH WALES.**—The following is a summary of the weather here for the past month. Sunshine, 234 hours; one sunless day. Rain fell on four days. Total amount, 0.96. Maximum, 0.48 on the 25th; minimum, 0.01 on the 12th. The wind was in the E. and N.E. till the 22nd, after which it was S. and S.W. It was bitterly cold the beginning of the month, and very strong. We had a fall of snow on the 17th, since which time it has been much milder.—W. MABBOTT, *Dowlais, Glamorgan.*

— **SUSSEX WEATHER.**—The total rainfall at Abbot's Leigh, Hayward's Heath, Sussex, for May was 12 inches, being 1.83 inch below the average; the driest May in the past fifteen years, with the exception of 1893, when the amount was 0.05 inch. The heaviest fall was 0.04 on the 17th and 30th. Rain fell on four days. The highest shade temperature was 83° on the 30th; the lowest, 33° on the 2nd, 3rd, and 4th. Mean of maximum, 67.18°; mean of minimum, 43°; mean temperature, 55.09°, which is 0.58° above the average. June came in rather unsettled, and we had some slight showers, but Sunday was hot and dry, with a rising barometer. Rain much wanted.—R. I.

— **PAPAVER BRACTEATUM.**—I consider this Poppy is an improvement on the better known *Papaver orientale*, the original type of perennial Poppies. The habit of growth of *bracteatum* is more compact than in the case of *orientale*, less space being occupied by the leaves, and the flower stems are stouter, standing quite erect. In point of colour *bracteatum* is more intense in the crimson scarlet of its petals, while the plum-coloured hue of the anthers adds very much to the lustre of the whole. At the present time I have over a hundred plants in two rows by the side of a path, each carrying on an average ten fully developed blossoms. The effect produced by such an array of colour is easily imagined. In point of hardiness *bracteatum* is quite equal to *orientale*. A stock of plants can quickly be raised by sowing seeds on a well prepared bed any time during June, putting out the plants directly they are large enough to handle where they are to flower, and giving them some slight mulching material for the first year.—E. M.

— **THE EDINBURGH SCHOOL OF RURAL ECONOMY.**—We have received the prospectus of this school for the session 1895-96, and observe that it comprises courses of lectures on botany, agricultural chemistry, forestry, and numerous other subjects. In the prefatory note it says that "those who enter these classes ought to have previously completed a good general school training, and further that the complete course aims at fitting a young man to enter with intelligence into his work as a farmer, a gardener, or a forester. It should enable him to understand the greater part of the work that he will see in practice, and to study for himself any special subject that he may afterwards find to be of importance to him." The lectures commence on the second Monday of October, and end on the last day of March. The range covered by the whole course is very broad, and should be of very material assistance to those students who studied closely. The fees, which are moderate, may be paid for any particular course or for the whole of the subjects, and for these and detailed particulars those desirous of taking advantage of the classes should write to the Rev. Professor M. C. Taylor, the University, Edinburgh, who is the Secretary.

— **DEATH OF MR. E. RUSH.**—The death is announced of Mr. Edward Rush, a well known and much-respected seedsman of Chester, who expired on Tuesday, 4th inst., after suffering from heart disease for some time.

— **AN ANCIENT TREE.**—Perhaps the oldest tree of which there is any record is the Cypress of Soma or Somma in Lombardy. This celebrated tree is generally supposed to have been planted the year of the birth of Jesus Christ, and on this account is treated with great reverence by the inhabitants of that part of Lombardy where it grows; but there is an ancient chronicle extant at Milan which proves it was a tree in the time of Julius Caesar, B.C. 42.

— **BOLTON CHRYSANTHEMUM SHOW.**—The ninth annual show of the Bolton Horticultural and Chrysanthemum Society will be held in Albert Hall of that town on Friday and Saturday, November 15th and 16th. By the schedule before us we find that though the classes are not very numerous the prizes are very good, and should bring many handsome exhibits. The Secretary is Mr. James Hicks, Markland Hill Lane, Heaton, Bolton, from whom full particulars may be had.

— **EARLY STRAWBERRIES IN CORNWALL.**—With a continuance of favourable weather the Strawberry crop in the Tamar Valley will be early and plentiful this season. Several ripe fruits were picked by Mr. Joseph Start of Kelly Gardens, Calstock, on 20th May. Children attending Geoffrey's Endowed School, Landrake, says a contemporary, gathered several bunches of fine wild Strawberries from the hedges around the village last week, and on Sunday wild fruit quite ripe were picked on the railway between Probus and Truro.

— **TASMANIAN APPLES.**—According to a contemporary the export of Tasmanian Apples to England this season will amount to about 150,000 cases. The Tasmanian Government will guarantee freight on 30,000 cases, which will be collected from the growers, but shippers of the remainder will make their own arrangements with regard to freight. All fruit sent per contract ships will be subject to inspection, and any that is not up to the mark will be rejected. Cleopatras, Adam's Pearmain, and Scarlet Nonpareils are to be not less than 2½ in diameter; and Sturmer Pippins, French Crabs, and Ribston Pippins 2½ in diameter.

— **FRUIT CULTURE IN THE HIMALAYAS.**—Is there a future for fruit culture in the Himalayas? Mr. Caley Smith of the Yalumba Vineyards, Angoston, South Australia, is of opinion, from observations at Darjeeling and Mussoorie, that very much more might be done in this direction than has yet been attempted. He further suggests that the Government of India should expend £1500 or so a year for the purpose of keeping up an experimental orchard, where experiments in hybridisation of various fruits might be made, and their results made known to horticulturists by publication in a Government journal of agriculture. This plan has, he says, been adopted with success in Australia, Canada, and the United States.—("Madras Mail.")

— **A GIGANTIC ORCHARD.**—The largest orchard in the world is said to be that of Elwood Cooper, Barbara, California. It is a tract of 1700 acres, and contains 10,000 Olive trees, 8100 in bearing, the remainder being young trees, set out during the past year and a half. Besides the Olive trees there are 3000 English Walnuts, 4500 Japanese Persimmon trees, 10,000 Almonds, and about 4000 other fruit and nut trees. The 10,000 Olives yielded 40,000 quart bottles of olive oil last year, which found a ready market at 4s. per bottle. The nut trees bore thousands of bushels of nuts, to say nothing of the Japanese Persimmons. Taken in all, it has been estimated that Mr. Cooper's orchard brings him in an income of not less than 750 dollars per acre every year.

— **LINNEAN SOCIETY.**—The gold medal of the Linnean Society has this year been awarded to Prof. Ferdinand Cohn of Breslau, whose name is well known in connection with the "Botanic Journal," which he has conducted, largely adorned with his own contributions, from 1870 to the present time. The work of Dr. Cohn extends over half a century. He was one of the earliest to investigate the life-history of the lower Algæ, and to demonstrate that they are not asexual. His important paper on "Protococcus pluvialis," published so long ago as 1850, was translated by Busk for the Ray Society. Subsequent papers by him, on the mode of reproduction of *Sphæroplea annulina*, and on the development of *Volvox*, mark a distinct advancement in botanical science. The medal referred to was awarded to him at the anniversary meeting of the 24th ult., and has been forwarded to Breslau, for his acceptance, through the German Embassy.—("Nature.")

— IS BAMBOO "WOOD?"—A judge of one of the United States Courts has been called on to decide whether a Bamboo handle for an umbrella-stick was "wood" or not. The legal luminary decided that the umbrella stick in dispute was "grass," and not wood. As a Bamboo stick is as woody as most other sticks of the same age, if not more so, it is difficult to see the grounds for the judge's decision. It is fortunate for the judge that he is not likely to present himself before any court of botanical examiners!—"Mechan's Monthly.")

— NATAL BOTANIC GARDENS.—The report of the curator (Mr. J. M. Wood) for February is as follows:—I am pleased to say that the seeds of *Cola acuminata*, received from Kew, have so far grown well, and we shall, I hope, have a few plants in the spring for trial in other parts of the Colony. The nuts of this plant are now being largely used, and are in demand. The seeds of "Cocoa" plant (*Theobroma cacao*) kindly brought for us by Mr. A. Whyte of Nyassaland, had perished on the voyage, and I regret that not a single one has germinated. We have supplied to the Government Police Station at Sydenham, in accordance with the vote passed at last meeting of committee, fifty plants to the value of £3 10s., and to Mr. Whyte, in exchange, a case of economic plants value £6.—("Tropical Agriculturist.")

— APPLE STOCKS.—What is with Mr. Molyneux a recommendation, so far as stocks raised from mixed Apple pips are concerned, is to the nurseryman a condemnation. They come so irregular or varied in habit and constitution, especially after being worked, some having a dwarfing and even a cramping habit, others have all the grossness of the Crab stock. For any home or amateur purposes it may be all very well to raise stocks in this way, because after some three or four years, as their characters show, they can be planted accordingly, some making fine standards, others dwarfed standards or bush trees. That, of course, would not do for the trade. Has anyone ever tried sowing pips, say from Manx Codlin in one case and from Blenheim Pippin in another, to name two sorts of opposite natures, and sowing and raising them separately to note results?—A. D.

— INSECTS ON FRUIT TREES.—I think it would be instructive and interesting if those of your correspondents who have tried any of the remedies for the destruction of insects on fruit trees, as recommended in the leaflet issued by the Board of Agriculture, would state their experience. I have given our Apple, Plum, and Pear trees two dressings of the mixture No. 2—viz., 5 lbs. quassia chips, 5 lbs. softsoap, 5 pints paraffin oil, with 100 gallons of water. The mixture was applied under favourable conditions by a syringe and small garden engine, a week between the applications, and I regret to say that the mixture seemed to have very little effect on the caterpillars. I have come to the conclusion that a bad attack of caterpillars can only be warded off and destroyed by using some of the arsenical compounds, as used in the United States and Canada; but I find that the mixture No. 2, as given above and prepared according to instructions, is a capital remedy for black fly on Morello Cherries.—R. M., *Newbury*.

— AGRICULTURAL EXPERIMENTS.—The extent to which many of the American agricultural experiment stations are devoting attention to the culture of small fruits and other minor crops is perhaps significant of an impending change in the economic bearings of the management of the soil, and of the partial displacement of the *grande culture* which has hitherto almost monopolised the field of experimental inquiry. Bulletin No. 55 of the Purdue University Station, Lafayette, Indiana, opens with a description of experiments with small fruits. Strawberries, Raspberries, Blackberries, Currants, Gooseberries, and Grapes form the subject of this section of the report. The bulletin concludes with a notice of experiments with Sugar Beet; but in view of the desperate condition to which the Beet growers of France are at present reduced—despite the artificial support which the sugar industry there receives under the bounty system—we cannot, says "Nature," see any immediate hope for the American Beet-sugar industry. This, indeed, is practically admitted in the bulletin, for it is said, "The condition of the sugar business throughout all sugar-producing countries is such that there seems to be little probability of capital being invested in Beet-sugar plants in this country at present." The points which are reported on include comparison of varieties, time of harvest, the respective effects of bacterial disease and Beet scab on the sugar content of Beets, the effect of loosening Beets some time before lifting them from the ground, special thinning, tests of foreign and American seed, and yield and cost of crop per acre. It is concluded that, under more favourable economic conditions, Beet factories might advantageously be established in the State of Indiana.

— CLEMATIS MONTANA.—The brief allusion to this charming Clematis, page 687, reminds me of how I saw it flourishing in Dulwich Park a week ago. There it was planted amongst the shrubs, and allowed to ramble at will over supports, such as stout boughs and tree roots. In many cases the clumps were 6 feet high and 4 feet through, and one mass of flower. Associated as these floral clumps were amongst evergreen shrubs, the effect of the snowy white blossoms was much enhanced. I thought I had never seen this Clematis so effectively employed, not even against a south wall.—E. M.

— ROYAL BOTANIC GARDENS.—The Royal Botanic Society of London was incorporated by charter in the year 1839, and for the first time in its history of fifty-six years its beautiful gardens were on Whit-Monday thrown open to the general public at a "popular" charge of 6d. each person. Nothing in the way of entertainment, not even a band of music, was provided. Up to about five o'clock in the afternoon the entries at the turnstiles had been a little under 5000. Nothing seemed required but a good band out on the lawn to make this new departure of the Botanists an unqualified success, and if it were repeated occasionally through the summer it ought to bring an important accession to the funds.

— COREOPSIS GRANDIFLORA.—For cut-flower purposes or for a border plant there is nothing which bears yellow flowers to equal *Coreopsis lanceolata* and *C. grandiflora*. I was never aware of its value as a pot plant until this year. We wintered a few plants in a cold frame in 5-inch pots and brought them indoors about the middle of January, and a shift was given them to 8-inch pots about the middle of April, when the flower-stems were well advanced. Since the last week in April our plants have been loaded with flowers some 3 inches in diameter, borne on fine stems 18 to 24 inches long. For cutting this *Coreopsis* is much superior to any other variety, and its easy cultivation should ensure its wider use as a pot plant. We sow our seed in the open ground the last week in July, and those required for indoor use should be potted about the end of October.—W. N. CRAIG (in "Garden and Forest.")

— LETTUCE.—Great complaint is made in a number of gardens of the scarcity of spring Lettuce, the severe winter killing not only those in frames for late winter use but young plants for spring planting as well, although they may have been protected by frames. This has not been the case here, all my Lettuce having come through the winter without any loss. The last sowing, to provide plants for spring planting, was made on September 1st. When severe frost sets in a frame is set over them, and as a rule there are numbers of good plants in the spring. Not having the frames to spare last winter, the plants had no protection whatever, notwithstanding they appeared no worse for the exposure. A large bed planted on the same border, for the purpose of putting into frames for winter use, as well as some Endive of both the broad-leaved and green curled varieties, also stood through the winter without loss. Perhaps it is only fair to add that for the greater part of the winter they were covered with snow; this no doubt preserved them. These plants were covered with "cloches" in early spring; cutting commenced on the 25th of April, since that time there has been a constant supply. The varieties were Brown Cos and All the Year Round. The latter I consider one of the best of the Cabbage Lettuces.—J. S. UPEX.

— PROFUSION OF CATERPILLARS.—In some of our Kentish woods or copses, where the precautionary measures against caterpillars taken in gardens and orchards are neglected, hordes of these insects are holding high revel during the month of May. The expansion of the leaves on trees and shrubs has been checked by the lateness of the season, also by the continuance of easterly winds, and the attacks of the caterpillars on the foliage at the present time will leave effects from which young trees will not recover this season. The fact is important, as being one of those showing that a very cold winter may not be any check upon caterpillar life in the following spring. The majority of them belonged, I found, to the genus *Hybernea*. The too familiar caterpillars of the winter moth were well represented, and the stout, many-coloured caterpillars of the spring usher; both these species partially escape birds by their habit of drawing the leaves together. There were also caterpillars of the early moth and the mottled umber, the latter being remarkable for their habit of swinging themselves from a silken cord occasionally, as an amusement it would seem, and not merely, like some species, when the wind has given them a shake. If we had had the heavy rains we get in some springs, a good number of these would have died at an early stage, as it is they are fat and flourishing. Some trees were almost defoliated by them, the Hornbeam and Hazel suffering much, also the Sloe.—C.

MARANTAS.

THOUGH in all gardens, both large and small, flowering plants are usually accorded the most prominent position, space should be, and generally is, found for a few foliage plants, comprising those more especially that are useful for the embellishment of rooms. Fortunately plants adapted for this purpose are numerous, so that though Marantas may not be so used it should be no drawback to their cultivation, for they are certainly among the most beautiful foliage plants we have. There is, however, one reason why they cannot be universally grown, and that is, a hothouse temperature being essential to insure perfection. In large establishments such a difficulty is not likely to arise, but with small amateurs the case is materially different, as only one structure is usually at command to heat which to a stove temperature would be an error, as

or that their culture is but imperfectly understood, and in the opinion of the writer the latter is the reason of their unwarranted neglect.

To endeavour to remove the ban that is apparently placed on them a few details of what has proved a successful method of treatment will be given, and will perhaps induce some of the excellent and practical writers of the Journal to give their opinions about them, and also to give suggestions as to cultivation that are likely to be of assistance as well to the writer as to the very large numbers of other readers of what may justly be termed the "gardeners' paper." Let me, then, describe a mode of procedure that may be taken as a safe basis on which to work, though it is by no means put forward as the best method, as it is probable that many growers attain to success by means differing in several of the essential points.

The propagation of Marantas, as is well known, is effected by



FIG. 90.—MARANTA MASSANGEANA VAR. FLORENTINA.

it would preclude the cultivation of many plants even more useful than Marantas. Certainly one or two varieties stand fairly well in rooms, but, speaking generally, they cannot be strongly recommended for this purpose, but simply for the adornment of houses in which the requisite heat can be insured. For such a purpose as the latter they are of value, because they provide a handsome leafage not found in any other class of plants.

Notwithstanding the undoubted merits of Marantas it is seldom that one sees an article on their cultivation in the pages of the *Journal of Horticulture*, or indeed in any of the gardening papers. True, from time to time notes appear in the "Work for the Week" column giving hints as to the treatment requisite at the moment. That these plants are not always grown well is proved on a visit of inspection to many establishments, where they may be seen represented by miserable specimens that are by no means a recommendation to their extended culture. On the other hand they may frequently be seen in the best of good health, with stout leafage, splendidly coloured, and strong, sturdy growth. These two facts either tell us they are very difficult to grow well,

division. Apparently opinions differ as to the best time for this breaking up of established plants, but there can be little doubt that during March is as good a time as any. The extent to which this division is to be carried must of course be governed by the number of plants that is desired. These offsets must be potted and then placed in a moist atmosphere, where they will be shaded from the direct rays of the sun, in a temperature of from 60° to 70°, which may be raised as the plants gain size and the summer advances. Though shade is desirable it must not be such as to shroud the plants in darkness or the growth will be tender and weak, with foliage destitute of the richest colouration. Another point conducive of dwarf growth is a modicum of fresh air, but this must be afforded with the greatest care, or instead of producing good effects it will cause an immediate and total collapse. As the plants attain size they can be transferred to larger pots, and at all times must have most careful attention with regard to watering.

During the winter months the temperature should not be allowed to fall much below 60°, and the atmosphere must always be moist but

never to the point of stagnation. At frequent intervals it is advantageous to carefully sponge the leaves, as well to keep open the pores as to insure the plants against the incursions of insect enemies to which, with the majority of stove plants, they are very liable. With regard to soil there is an abundance of latitude, as *Marantas* thrive well in either peat or loam, growing somewhat faster in the former than the latter, but usually with much softer stems and more flimsy leaf texture. So far as my experience teaches me, success depends, not so much on the soil, as on the atmospheric conditions under which the plant is growing, a dry atmosphere being inimical to success, while pleasantly warm, moist temperature conduces greatly towards perfection. It will be observed that no particular sizes of pots have been mentioned, and it is for the reason that this must depend entirely on the sort that is being grown, some having large leaves and attaining to considerable dimensions, whereas others have much smaller leafage and never become very large plants. This gives the general outlines of the culture necessary for these plants, and it is now left for more fluent pens to provide any details that will prove of value in rendering *Marantas* more easily grown, and more generally seen in good condition than is the case at present.

It would be superfluous for details to be given of the many species and varieties now in cultivation, but mention of three handsome varieties shown at the Temple show in 1894 may not be out of place. Each of these is a variety of *Maranta Massangeana*, and of the trio perhaps the best was named *Florentina* (see woodcut, fig. 90). The leaves are beautifully marked, the colours being very clear and striking. The ground colour is a lightish green, blotched with whitish green and brown, and having clearly defined rosy coloured ribs. It is singularly beautiful. *M. m. atrata* is also handsome, with dark green leafage. The ribs are pale green, and each leaf has a margin of rich velvety green. The last to be named is *M. m. metallica*, a fine variety with deep green leaves, having white ribs. The centre of the leaf near the midrib is paler green, shading to chocolate brown. These splendid *Marantas* were shown by Messrs. Linden & Co., each receiving a first-class certificate.—F. Row.

LINCOLN'S INN FIELDS.

THIS fine open space of 12 acres, remarkable for being the largest near central London, and important on account of the ventilation it gives in the midst of crowded streets, has at last been thrown open to the public, after being many years reserved entirely for members of the legal profession and their friends. It is noticeable also as being one of those squares that is well timbered, so much indeed that the grass and various border plants exhibit, during summer, some ill effects from being overshadowed.

Still does the locality retain its rural designation, and, what is curious, we have not far from it a little-known bye-way which long bore the name of Whetstone Park, a relic of some plot of ground on which the people of Holborn exercised their horses, and the old Fields were probably used for the same purpose. Strolling there now one recalls the story that Inigo Jones designed the outline when it was first built on, and that the central space is just the dimensions of the base of an Egyptian pyramid. But for this tale we can find no good foundation; it is only true that he built some houses on the west, called Arch Row, about 1618.

In the seventeenth century the site was really fields, a place resorted to by idlers, beggars, and bad characters, so that at night it was exceedingly dangerous for solitary persons, and, according to Gay, the spot continued to be perilous even after the square was partly enclosed. The people we see enjoying this newly acquired public garden at any hour of the day are certainly a contrast to those said to have haunted the old Fields, and who had the name given them of Lincoln's Inn Mumpers. We can picture them, mostly ragged and dirty, playing at games, but stopping to make a rush should a coach pass in the hope of getting some money by a clamorous appeal.

Here Joseph Jekyll, who had brought in a Bill to restrict the sale of gin, was seized by the infuriated populace, and almost trampled to death. It was also sometimes the scene of executions. The residents took steps to "rail, clean, and adorn" the Fields in the autumn of 1735. There is no doubt some trees and shrubs were then planted, but I query whether any of the trees now growing date back as far. The London atmosphere does not favour their longevity, and some, the Elm for instance, are great sufferers from insects. Elms, we perceive, for this has always been a favourite in London squares, possibly a centenarian exists amongst them, but the most noticeable and numerous trees are Oriental Planes (*Platanus acerifolia*), which seem to be flourishing. There are some Limes and a few Robinias. This species is now scarce about London, most of these planted in last century have died off and have not been replaced.

Solitary Hawthorns that have reached the size of trees in this enclosure are somewhat gnarled and twisted, as if they had suffered from their conflict with the elements during many years. Elders, of course, are to be looked for in any London garden with a history, though why this tree should have been such a favourite formerly we cannot quite see; it seldom fruits about the metropolis. The presence of the Hornbeam here might imply the tree was planted by someone familiar with Epping Forest, where it grows so freely, or did till the number was reduced by extensive felling of the trees; this is not a species often selected for planting about London. An occasional Blackthorn and Guelder Rose greets us, also another shrub familiar in hedge-

rows, the Wayfaring Tree (*Viburnum lantana*), which is opening its flowers. But no shrub is so abundant as the common Lilac, which really fares well in the smoke, if the caterpillars would leave it alone.—J. R. S. C.

THE R.H.S. EXAMINATION PAPERS.

"E. D. S." (page 470) is courageous in attempting to furnish answers to the series of questions set by the examiners for the R.H. Society, and recently published in the Journal. Still, he is to be commended if in furnishing his answers he is doing his level best, and does not mind correction or criticism. As to how far his replies would satisfy the examiners is another thing. Generally they are fairly correct, although some are rather too brief, and should have had fuller elucidation.

"E. D. S." does not tell us whether he was a candidate at the recent examination. If not, perhaps he is like very many other gardeners who now wish they had faced the ordeal, as that does not seem to have been so severe a one as was anticipated. The assumption that roots absorb compounds "E. D. S." does not say whether in solid or liquid form, through their surfaces do not accord with scientific teaching, or that they do so through what he terms "spongioles" at the extremities, meaning thereby, of course, the root cap, or borer, which is presumably of a somewhat hard impervious nature.

So far as science has made clear it seems that root hairs are the only mediums by which food is absorbed, and that, too, in an essentially liquid form. Plants are often starved to death in the midst of plenty of food, simply because moisture is absent and the food cannot be rendered soluble for utilisation. Answers 2 and 3 are very good. With respect to the formation of "callus" at the base of cuttings, the essential precursor of roots, it is indeterminate how far that may have power to attract moisture from the soil for the sustenance of the cutting before roots are formed. We do not know whether that matter, apparently hard or leathery like to the texture of roots, may not have exceedingly minute hairs on its surface through which moisture may be absorbed. Unless something of the kind is so it seems difficult to understand how cuttings can remain fresh and plump, retaining leafage so long before roots are really formed.

Answer 4 is as good as it is brief, and one would have liked to see it more fully elucidated, especially in relation to the placing of that portion of the soil which by previous exposure on the surface has become thoroughly sweetened and aerated down below, where it furnishes good plant food, and bringing the less aerated soil to the surface.

In answer 5 the description given of the growth and structure of the Pea plant, an admirable subject, is excellent, but "E. D. S." is rather out in his reference to the ordinary method of flower fertilisation. In most forms of Leguminosæ, but especially in the Pea flower, fertilisation takes place before the blooms are open, and quite outside of external agency. Cross-breeders of Peas find that it is needful to open the flower petals very early in the florescent stage, and remove the pollen anthers, so that no self-fertilisation takes place. The foreign pollen has to be conveyed to the pistil of the flowers to be operated on a little later. Were Peas so easily affected by external influences, as wind or insects, we should rarely find them come true from seed when grown close to each other.

I do not think it is correct to class an Onion as an underground stem. Practically it grows on the surface of the soil. A Potato is correctly described. Something as to the ordinary methods of Mushroom culture might have been added to the brief description of the operation of the mycelium in fungus production.—A READER.

REFERRING to this examination, I should like to ask through the medium of the *Journal of Horticulture* what those who sat think of the time allowed to answer the questions. I sat at the examination the last two years, and both times I experienced the same difficulty—i.e., not being able to answer the questions in the time allowed. I thought the first time it was my inability to answer them, but this year at least two-thirds of those who sat at the same centre complained of there not being sufficient time allowed.

If this were a general opinion it would be advisable to ask the Society to extend the time to the three hours, the same as allowed at the science examinations. I notice on page 470, "E. D. S." has answered the first eight questions set, but I doubt if these answers would be full enough to satisfy the examiner; if they were, the difficulty I complain of could soon be remedied, for such answers would not take the majority long to write.—W. D., *Turnford, Herts.*

[This is not by any means the only intimation we have had of the too limited time allowed for answering the questions satisfactorily.]

CHISWICK GARDENS.

NATURALLY very much out of sight is the work constantly in progress at these gardens. The shows held in London from time to time attract the notice of Fellows of the Royal Horticultural Society and the public, because they come more into the foreground. Chiswick, though very near to London, is not so much in evidence; it is not at all showy or demonstrative, and for these reasons doubtless it fails to attract that notice which it so much deserved. Even to the bulk of the Fellows of the Society the gardens constitute almost undiscovered territory. Their visits (when made) are few and far between, and then only when a show, conference, or some special function invites

their presence. Even on those far too rare occasions when the Committees are convened there the attendance is usually small, yet from a purely horticultural aspect probably there is no work done by the members of more real interest than is put before them at Chiswick.

To some extent the Council is to blame for this neglect of their delightful gardens. They do nothing to entice attendance, not even on show days. What would it cost the Society to hold just one fête day or reception of all the members of the Committees during the summer? making it a special gathering, as much of a social as of a professional character, the morning devoted to work, which is both pleasant and useful; the afternoon and evening to friendly association, discussion, and enjoyment. To how great an extent would such a gathering help to popularise Chiswick in the estimation of its more practical supporters.

Realising my own personal responsibility as a Fellow, I went to the gardens a few days since, just to see how they were looking and what could be learnt in them. A special need, I trust, amply satisfied ere this appears in print, was rain—a universal want. The Chiswick ground is very porous, and soon parts with its moisture. Still everything was looking exceedingly well, and every effort had been made to utilise the dry weather to clear the ground and keep down weeds. Mr. Barron's assistance is none too great, and in some cases heads count for more than backs; yet it is pleasant to see old servants, men who have in earlier days worked hard in the Society's interests, still employed and doing their best. A couple of more stont backs could, however, find ample occupation, especially where, as at Chiswick, what is done needs to be done with special care, as the work is generally of greater importance than is what usually is found in ordinary gardens.

There is good promise at present of a fruit crop there. Strawberries blooming and fruiting profusely in several parts of the gardens, and including apparently almost every known variety, should present this year a splendid opportunity for the Fruit Committee to sample them. This chance has not offered for two years—in 1893, because of the exceeding drought, and last year because of the late spring frost. Even now there is a fly in our pot of ointment, for a heavy rain is badly needed to set up the plants, as it is now with the crop a critical time. Given a heavy rain, then a fine lot of fruit should be assured. Were the Council less anxious to market the fruit, and more desirous of entertaining the Committees, no doubt an invitation to a Strawberry feast at Chiswick a few weeks hence would be freely responded to. Apples on nearly all trees are a great set, the fruits now swelling. How Nature, when there is such a big bloom, does her own thinning, may be exemplified here, where two blooms perfect themselves and ten fail.

The small bush or half-standard trees in the northern side of the gardens that seem to crop so well every year, are again full of fruit, some rather large trees transplanted last autumn excepted. Those will, however, fruit next year, no doubt. It is worthy of observation, and perhaps accounts for these small trees fruiting so freely when so many others fail as last year, that Mr. Barron does not hard prune or really shorten back the shoots. He thins out somewhat, Black Currant fashion, cutting out old branches hard down as needed, keeping the heads thin, but the branches hanging free. That promotes a somewhat drooping habit of growth, and perhaps because the bloom is not so much exposed to frost as is the case with flowers on stiff hard-pruned trees, it escapes injury. In any case it is not possible to have better average results than these trees on the Paradise stock give at Chiswick.

Pears are generally plentiful on the wall cordons; a very fine stock indeed of trees thus trained. They seem to be thin on the upright cordons, and a moderate crop on the fine pyramids in the gardens. There seems to be plenty of this fruit in any case. The old Plum quarter has been grubbed out, and a quarter formerly utilised for Potatoes and Peas has been planted with young trees in rows of three on each side of a centre path. There is abundance of room yet. All these are doing very well, and they seem to include every known useful variety. These trees are of both bush and semi-standard form, and in a few years should present a fine fruitful plantation. There is a very fair set of Peaches and Nectarines on the trees outside.

Under glass the large span-house just within the gardens is now becoming an interesting feature. The Vines trained to uprights some 10 feet in height inside have nearly covered the under side of the roof, the rods running across overhead and partially down towards the eaves. They are fruiting very well. I noticed very little fruit set on the upright stems, however, and should have thought planting quite at the sides, running the rods right to the ridge, would have been best. Still, the method of planting seen may have its objects and lessons. There is a grand lot of Tomato plants standing along the sides of the house. These are in full fruit, and should give a capital trial early. There are of Tomatoes two other later sowings, one in a span house, the plants 3 feet in height, and one in a lean-to 1 foot in height.

The Fig house is a most interesting feature. The collection is of the most complete nature, trees of all sizes; though the bulk are in very large pots, all in the most perfect health, are fruiting abundantly. It is very doubtful whether a finer collection or better grown trees in pots are to be found anywhere in the kingdom. A trial of some 100 varieties of bedding Violas cannot fail to attract attention. They are planted out in rows of six across the line of beds that border the path leading to the old Council room. No doubt later after they have become strong they will make a very attractive feature. To me they offered cause to ask why so much sheer rubbish should be indulged with names, but tastes over Violas seem just now to have rather run wild. However, favoured with rain, these Violas promise to do very well. Elsewhere Sweet Peas in great variety, herbaceous Phloxes in abundance—far

too many, in fact; perennial Asters, and Pæonies present plenty of attractive material.

Vegetables seem in grave danger of getting crowded out. I notice in the quarter devoted to Peas on one side, and runner and dwarf Beans on the other, that each variety has perforce to be restricted to rows 10 feet long. Perhaps it is enough, but it is rather bare stint all the same. Peas need sticks badly, and have all been well earthed. They have, like Peas everywhere, come up in some places thinly, but perhaps that may be all the better for the trials in the end. Beans seem to be largely represented. In another quarter there are some sixty-eight varieties of Potatoes planted, nearly all being well through the ground. Any harm from frost is now improbable. Raisers seem driven to their wit's ends to find new or distinctive appellations, and some are amusing. Some others seem to be boldly stolen from well-known varieties in cultivation. That is a method of nomenclature which should be severely repressed, and I hope the Fruit Committee will notice it.

These things I have mentioned do not comprise everything of interest that may be seen at Chiswick, but they suffice to show how the gardens are being utilised. Some day, perhaps, all the garden space may be utilised for fruits and flowers, the Council finding a couple of acres of ground somewhere else in the neighbourhood where vegetables can have wider representation and more justice rendered to their economical importance than is now shown. A very light, elegant span-roof curvilinear house, 50 feet by 14 feet, erected in the gardens by Messrs. Skinner, Board & Co. of Bristol, will, no doubt, attract much attention and ample criticism later. Its construction is novel, as also is its glazing. It is wonderfully light, but how far it may be serviceable or enduring has to be shown.—A. D.

QUESTIONS AND ANSWERS.

DIVISION B.—HORTICULTURAL PRACTICE.

QUESTIONS.

9, NAME six of the best species of hothouse flowering plants, and give some of the general details of culture. Name some of the insect pests that infest such plants, and state the best method to be adopted for their destruction.

10, Give general details for growing Peas, and the method of culture, time of sowing, &c., to give a supply for as long a period as possible. What is the use of the nodules on the roots?

11, What is an Alpine plant, as the name is generally understood in gardens? Describe the cultural requirements of such plants, and the best way to propagate them.

12, What is the original parentage of Cauliflower and Broccoli? Give the method of culture, and the best varieties to obtain a succession all the year round.

13, Give some details of the culture of Grape Vines under glass. Describe the diseases to which they are subject, and the insect pests which attack them, and their cure.

14, What kind of fruit trees and bushes are best adapted for culture in small gardens? Briefly describe the best method of culture, and arrangement of the trees and bushes.

15, In a walled garden, what kind of fruit trees would you recommend to be planted on the four aspects—south, north, east, and west? What distance apart should the trees be? Suggest the best width of the borders, and height of the walls.

16 (a), What do you consider the best class of soil for fruit trees, and how ought it to be prepared for them?

(b), Is there any method of culture likely to prevent canker in Apple trees, or gumming in Apricots, Cherries, and Plums?

ANSWERS.

9, Allamandas, Clerodendrons, Eucharis, Euphorbia jacquiniæflora, Gloxinias, and Stephanotis floribunda are six of the best species of stove or hothouse-flowering plants. Allamandas, Clerodendrons, Euphorbias, and Stephanotis require to be grown in a light position near the glass in an average temperature of 65°, providing a light shade during very hot weather in the summer. They succeed best when planted out in a well-drained border of soil composed of loam, peat, leaf soil, and sand, the growths being trained on wires. The Euphorbia is excellent for the back wall of a stove, where with an average amount of light to help ripen the wood it produces bloom in midwinter if afforded a temperature of not less than 60°. During the period when the young wood of the plants named is being made a moist atmosphere is essential; at the flowering period a buoyant and airy temperature, with comparatively cool conditions for all in winter but the Euphorbia. The Eucharis succeeds in pots or beds, a temperature of 70°, and a moist atmosphere with frequent syringing to promote free, strong growth. On the completion of this a more airy temperature must be maintained, finally subjecting the plants to cool conditions with little water to assist the completion of the ripening process. When placed in heat again the flower spikes are thrown up almost immediately. Gloxinias enjoy a moist temperature of 60° to 65° during active growth. When at rest the plants are leafless, and the tubers should be kept dry in a temperature seldom falling below 50°. As growth commences in the spring the tubers must have attention to repotting in a compost of loam, peat, leaf soil, and sand. A little bottom heat at this stage promotes growth. Water sufficiently, but not excessively at any stage. Give weak liquid manure when the pots are full of roots. Continue liberal treatment after flowering and until the foliage shows signs of decaying,

when withhold water gradually, ceasing completely as the plants go to rest.

Mealy bug and scale insects attack most of these plants, while a mite prevails among the roots of *Eucharis*. The latter can only be cleared by washing the roots and using fresh untainted soil. The first and second named are best destroyed by careful sponging, though an insecticide composed of softsoap solution, 2 ozs. to the gallon of water, adding a wineglassful of petroleum, working the whole into an emulsion, keeping it thoroughly mixed by constant agitation, is good when syringed over infested plants, serving to destroy many if not all the pests that assail them. *Gloxinias* should not be syringed either with insecticides or clear water. They are not, as a rule, subject to insect pests.

10, In the cultivation of Peas the ground ought to be deeply dug and liberally manured in the winter, leaving the surface rough to be acted on by frost, rain, snow, and wind. For the early crops select a warm, sunny border, sowing the earliest dwarf varieties of acknowledged merit. In favourable situations a few rows may be sown in February, following at fortnightly intervals until the middle or end of March, when second early varieties may be sown. From this date onwards to the end of May sow maincrop varieties, and in June sow again early Peas for producing the latest crops in the autumn. The method of culture with the early crops is to sow in drills 3 feet apart for the dwarf varieties, placing the seed rather more thickly than for succeeding crops. Taller varieties should be 5 and 6 feet apart, and for the main crop widely arranged rows are best, intercropping the vacancies with other vegetables. Where the soil is light and dry and for main crops generally an excellent plan of culture is to dig a trench a spade deep and wide, place in 4 inches of manure, then 4 inches of soil, on which sow the Peas, filling up, but not quite level with the surface, the remaining soil. Peas are benefited by keeping the soil loose about the rows when the plants are young, slightly drawing the earth to them when a few inches high, and sticking early. In dry weather mulch each side of rows with short manure or grass mowings and afford copious supplies of water varied with liquid manure, when such will be of assistance in swelling and perfecting the crops.

The nodules on the roots of Peas serve the purpose of converting free nitrogen gathered by the plants into assimilable matter, which can be appropriated by them. The conversion in question is effected through the agency of micro-organisms of the bacterial class.

11, An alpine plant is generally known in gardens as a hardy perennial of low growth, cultivated chiefly on specially prepared elevated sites or rockeries, the stones forming the latter providing shelter and protection for the plants from heat, drought, and cold. Their cultural requirements consist of a moderately rich and deep root run, so that they can become firmly established by rooting deeply, the soil also being kept moist to enable surface rooting. Each plant should be kept distinct from the intrusion of others. Those that need such help may be lightly top-dressed with leaf soil each spring. The propagation of these plants is effected by seeds, cuttings, offsets, and division.

12, The original parentage of Cauliflower and Broccoli is the Brassica or Cabbage. Cauliflowers for summer and autumn use require sowing in heat, transplanted into beds of good soil where shelter, if required, can be afforded by frames, finally planting in rich soil in April and May.

Broccoli may be sown in the open ground early in May, transplanted 4 inches apart when large enough, and planted on good but very firm ground in an open situation in July.

Early Snowball, Walcheren, and Veitch's Autumn Giant Cauliflowers; Snow's Winter White, Cattell's Eclipse, Leamington, and Late Queen Broccoli will afford a succession.

13, Grape Vines under glass may be started into growth at a temperature of 50° to 55°, gradually rising to 60° and 65° as the leaves expand; 10° to 15° higher may be allowed with sun heat, and a moist atmosphere maintained to encourage healthy growth. Ventilate early before the sun heat raises the temperature, and close early in the afternoons before the sun leaves the house, damping floors, walls, and staging. Moisten the inside borders if dry at starting, affording further supplies after fruit has set, and at frequent intervals up to the berries colouring, when copious waterings will not be needed so frequently. Liquid manure may also be given when the fruit is swelling, or top-dressings of some approved artificial stimulant, washing it in lightly.

Stopping and tying-in the shoots must be practised as soon as they have extended far enough, previously disbudding some of the surplus growths, leaving no more than two at most—one to bear fruit, the other to develop for the following season. Keep the atmosphere rather drier when the Vines are in flower, and assist the fertilisation of shy setting varieties by shaking the bunches of bloom at midday, or conveying pollen to them from free-setting kinds. Thin the bunches of small and crowded berries early, deferring those of Muscat Vines until the fertilised berries can be seen swelling freely. As soon as berries commence to colour give air freely and constantly, a little at night being beneficial given at the top. Front air is not necessary until the berries are swelling, air being admitted wholly from the top ventilators. Afford fire heat to maintain a buoyant atmosphere, and prevent damping as the fruit ripens. Fire heat also assists the wood to ripen if at all backward in the autumn.

The diseases which attack Vines are shrivelling of the berries owing to a lack of root power, dryness of the soil, and deficient nutriment. Rust on the berries appears from similar causes and from injury to the outward skin of the berries. Mildew arises from a damp, low temperature, insufficient air, and draughts.

Shanking originates from poverty and a lessened supply of sap and

overcropping. Young active rootlets are not numerous enough to continue the forces required from the Vines for finishing the crop well.

The insect pests attacking Vines are thrips, red spider, and mealy bug. Thrips may be destroyed by sponging the leaves when first attacked with soapy water, maintaining a moist atmosphere, which is not favourable to their spreading. Fumigation with tobacco will also destroy them, and is best where they are numerous. Red spider will not thrive in a moist atmosphere, and dusting affected leaves with sulphur destroys the pest. Special attention must be given to cleansing the Vines in winter, and in carrying out all details of culture so as to avoid fresh attacks another season. Mealy bug requires strong efforts put forth for its eradication. The best method is thorough winter cleansing of the canes with soap, water, and insecticides, painting the woodwork, whitewashing walls, and clearing out every scrap of rubbish. Even the top of inside borders should be removed, renewing with fresh material.

14, Apples, Pears, Plums, Cherries, Gooseberries, Currants, and Raspberries are best adapted for small gardens. Apples may be cultivated as half-standards and bush trees, arranged 4 to 6 feet from the walks round the central portion of garden, planting them 8 or 10 feet apart; or bush and pyramid Pears and half-standard Plums might be planted alternately with the Apples. If desired the whole may be arranged across the piece of land 10 feet apart, Gooseberries and Currants being planted among them 5 feet distance between each other in the rows. Cordon Apples and Pears are best for low walls. Raspberries should have a space of ground to themselves in which they can be planted in lines or clumps.

15, Fruit trees for a south aspect may comprise, in favourable situations, Peaches, Nectarines, Apricots, Figs and Vines. Less favoured places may grow Pears, Apples, Plums, and sweet Cherries. For north aspect, Morello Cherries, Gooseberries, and Currants. East, Pears, Plums, Cherries. West, Apples, Pears, Plums, and Cherries.

Fan-trained trees ought not to be less than 15 feet apart. Horizontally trained trees not less than 12 feet asunder grown on restricted stocks, on free stocks 15 to 20 feet. Upright and diagonal cordons may be planted 18 inches to 2 feet apart. The best height for the walls is 9 to 12 feet, the border being the same in width as the walls are in height.

16 (a), The most suitable class of soil for fruit trees is a firm loam of medium texture, neither too light on the one hand nor too heavy on the other, well drained, and not too deep, 2 feet being ample. Its preparation is best effected by deep digging, loosening the subsoil, but allowing it to remain where it is to facilitate the escape of superfluous moisture.

(b), The best method of culture to prevent canker and gumming consists first in the thorough preparation of the soil, then in planting healthy, vigorous trees, maintaining the roots active in the soil, and encouraging their production of active fibres near the surface. Avoid pruning excessively at any time, especially with stone fruit trees, as the removal of large quantities of wood at one time induces gumming. The general healthy condition of fruit trees depends largely on the state of the roots and judicious intelligent management.—E. D. S.

[We do not know whether or not our correspondent was a candidate for the R.H.S. examination. We think he has answered the questions at least creditably, if in some cases briefly, and his M.S. was admirably written, requiring practically no editorial corrections, while he has obviously imparted useful information.]

HARROW WEALD HOUSE.

THOUGH situated within about twelve miles of the City of London, Harrow-on-the-Hill is distinctly rural in its streets, its shops, its people, but not by any means in its railway. A few days ago a bright May morning found us making our way to Euston, whence we departed for Harrow, reaching our destination in a very short space of time. From the station we had before us a walk of nearly two miles by a very dusty road. How we were repaid and what we saw shall receive attention in the forthcoming paragraphs.

For those who have not diligently studied the "Horticultural Directory" and discovered the fact for themselves, it may be as well at the outset to say that Harrow Weald House is the residence of H. Grinling, Esq., who employs Mr. Rapley as his gardener. "Not Rapley, the Calceolaria grower, who was at Bedford Hill House?" said a friend, to whom mention was made of the visit. "The very same," we said. "Then you certainly saw something good," was the instantaneous rejoinder. This was a compliment indeed to this genial gardener, who takes the keenest and most intelligent interest in all things pertaining to his calling, hence, doubtless, his success as a cultivator. Celebrated as he is for the magnificence of his Calceolarias, he is by no means behind with fruits, vegetables, Orchids, and general flowers, for his spirit prompts and forces him to do all things to the best of his ability, which means in almost, if not all cases, well.

The drive to the mansion is broad, and under grand old trees such as give an air of dignity to a place that cannot be otherwise provided. At the end is a bed of *Myosotis alpestris*, amongst which are mingled a number of bulbs of the brightly coloured *Tulipa Gesneriana*, which looks so charming as to augur well for future prospects. Passing the house we enter the garden, or at least that portion of it which is devoted to the glass structures, comprising Orchid houses, Peach houses, vineries, and various plant houses, with large numbers of frames.

After a walk through the charming grounds, a pause was made to

look over the Calceolarias, which are growing as they should be, with foliage stout, deep green, and destitute of insects; stems stiff, strong, and requiring no stakes to keep them upright; and large trusses of handsome, shapely, and heavy flowers. The colours are exceptional—here for their softness, there for their intensity, and yonder, again for their translucency. For several years this able gardener has been working on Calceolarias with the object of improving them in texture, habit, and range of colouration, and well he has succeeded. An inquiry as to when the seeds were sown elicited the reply of "July last, and the plants have never once been allowed to stand still since that time." Constantly progressing is, in this grower's opinion, the way to make the most of these plants, for says he, "Once allow them to receive a check, and all hopes of attaining to perfection may be promptly relinquished. On placing the rule to one plant growing in a 4½-inch pot we found it to measure 2 feet across, and a count showed fourteen trusses of bloom."

Leaving with reluctance the Calceolarias, we pass to the next house, that contains some grand Palms arranged in the centre with a general collection of flowering and foliage plants on the side stages, and all evidencing the best cultivation. Amongst these *Justicia carnea* with its peculiarly shaped flowers was very attractive, while on the roof was growing a splendid *Stephanotis floribunda* that was carrying great numbers of its deliciously fragrant flowers. Another point worthy of remark about this plant was its absolute cleanliness in regard to insect enemies. In another structure red and white *Lapagerias* were making splendid headway. These were a few of the many plants seen. Before leaving the flowers, however, mention must be made of the *Gloxinias* that are grown so well. The plants are from seeds secured from a crossing of two of the finest strains in commerce, and as the best of culture has been accorded, the plants are now carrying large numbers of delicately hued blooms.

Fruits under glass are well grown, the Peaches and Nectarines being especially worthy of note. All the trees are producing good crops of fruit, and of course in various stages. The growth and cleanliness of the trees were alike excellent features, creditable both to the treatment and to the grower. Strawberries in pots are a feature indeed, for they are to be seen everywhere, large numbers being cultivated. They are principally kept on shelves in the various houses, and the quantity of fruit, with its perfect colouration, is proof that here again an excellent system of culture is followed. Melons look remarkably well, as also do the Cucumbers (if we can be excused for bringing them under the category of fruits) each of which is carrying very satisfactory crops. The Vines are somewhat too limited in numbers, and consequently have to do a great deal of hard work in the form of heavy crops year after year, despite which they are in fairly good condition, and are now showing some really good bunches.

From the fruits we quickly made our way to the Orchid houses, which, if limited in number, are stocked with a finely diversified collection of plants in the best of health. As a criterion of quality, readers might refer back to the splendid *Cattleya citrina*, figured in the *Journal of Horticulture* for May 9th, and which emanated from this collection. Numerous plants of *Cattleya Mossiæ* are grown, and on some the flowers are of distinct merit. In the same house were noticed *Phalænopsis grandiflorus*, *Lycaste aromatica*, L. Deppei; a very fine form of *Cypripedium Wallisi*, with its long petals; *Brassia verrucosa*, *Oncidium concolor*, and many others. In a small house of recent erection *Odontoglossums* of various kinds find a congenial home. Several charming forms of *O. crispum* were particularly noticeable, as also were *O. cirrhosum*, *O. cordatum*, and *O. Pescatorei* in variety. Brightening the display were plants of *Epidendrum vitellinum majus* and *Masdevallia Harryana*, while interest was added with a plant of *Masdevallia nycterina*, growing in a 6-inch pot, and on which were upwards of four dozens of flowers. To do justice to the Orchids much more should be said, but time forbids, and it is necessary that we go on, or we shall not see all in the allotted time.

Out of doors neatness is the prevailing feature, and it extends over the kitchen and fruit as well as the flower garden. Vegetable crops are all looking remarkably well, Peas being especially fine. Asparagus is, and has been for some time, providing good dishes, while all other crops in season are well represented. Potatoes and Lettuces in frames have been very fine, but are now rapidly getting past. Weeds are at a minimum, as the gardener believes in allowing useful vegetable and fruit crops to derive all possible advantage from the soil, instead of being robbed, as is often the case, by useless and untidy weeds. Fruit trees, young and old, are to be seen in numbers, some carrying fruits that are readily perceptible, others, of course, being very much later. Bush fruits also find a place, and with those previously named receive the best possible attention in every way, as, in fact, is the case with everything on the place. The flower and pleasure gardens, where Roses revel, are all admirably kept, and the same may well be said of the soft, springy lawns. But time forbids more lengthy mention, so with pleasant thoughts we return to the station and London.—NOMAD.

GROS COLMAN GRAPE.

MR. THOMSON'S eulogium (page 476) of this fine Grape is well deserved. So far as the need for good heat to develop flavour is concerned doubtless he is right so far as Clovenfords is in question, but I have tasted from Fordingbridge the best flavour this Grape can give, as grown by Mr. S. Castle when there, and his treatment was comparatively [c] ol. There are some Grapes, and this is one, in

which really capital flavour is found apart from deepest colour. Still, Gros Colman generally coloured very well. It would be very interesting were Mr. Castle to give a short outline of his Hampshire treatment of Gros Colman. Whether he may find it suitable at Nottingham has to be shown. If not the best flavoured Grape in cultivation it is one of the pleasantest to eat, because its flavour, unlike that of the Muscat, does not soon kill the palate, and a more refreshing Grape for ordinary use or for invalids does not exist.—D.

CELMISIA SPECTABILIS.

THIS is the name of the flower of which "A. B." sends us a fine specimen. It is a very rare plant, and is comparatively new, having been exhibited for the first time only about five years ago. The



FIG. 91.—CELMISIA SPECTABILIS.

woodcut (fig. 91) will convey to those readers an idea of what this little composite is like. This plant usually grows to a height of about 6 inches, and has narrow lanceolate leaves, white and woolly on the under surface. The flower heads are 2 inches in diameter, with closely set, narrow, pure white ray florets and a golden disk. Being very compact, it is well adapted for culture in pots in a cool house, or it may be found useful out of doors when more plentiful.

THE PLANTING OF WELSH CROWN LANDS.

ANY reflective traveller, whose business leads him over a large extent of the United Kingdom, must be surprised as the train whirls him over mile after mile of hill and dale, to see the large extent of hill-sides, too bleak or too short of soil to be profitable to the farmer, lying idle and unproductive. When he considers that our foreign timber bill amounts to nearly £20,000,000 per annum, and that we have thousands of acres of land quite as capable of producing this timber as those abroad from which our supplies are drawn, our reflective traveller will probably consider that the nation's immense expenditure abroad, for what it could in great part produce at home, is a fact adverse to the practical spirit that it is sometimes credited with. If he seeks after causes he will conclude they must either be indifference, ignorance, or want of capital.

Probably the part of the United Kingdom which affords the greatest scope for improvement in this matter of planting trees or afforesting is Wales, and we are very pleased to know that Mr. E. Stafford Howard, Her Majesty's Commissioner of Woods and Forests, has determined to try some experiment on the Crown lands in this direction by having an experimental plantation made at a high altitude, and in a very exposed situation. If this experiment results favourably we hope not only the Commissioners, but landowners generally, will carry out from year to year improvements and extensions in a similar way. That plantations are wanted, and that they would pay ultimately good interest on capital invested, should be obvious to all acquainted with the climate of Wales, which equals that of the Channel Islands and parts of the Continent from whence large portions of our supplies of timber, and of lesser articles, such as eggs, poultry, fruit, flowers, and dairy produce are drawn.

The connection between these articles of our import trade and plantations may not at first be seen, but if we could persuade Agriculture to learn lessons from her young sister Horticulture, she would see the importance of shelter from winds as shown in the garden and the tree nursery. In both, this is provided for by planting either hedges that are allowed to attain a good height and width, or by borders of the hardier trees on the outer boundaries of a garden. Inside these shelters tender plants and shrubs flourish vigorously, which would die outright if planted in the full exposure. In a similar way about the farm more trees should be planted in order to give shelter from the strong winds and sea blasts. If this was done early vegetables, fruits, such as Strawberries, poultry, and cattle, all would benefit thereby. Wales has the climate for early and profitable production of all these articles, and with industry, skill, and outlay of capital on the part of her children, with a little fostering care and leading the way by the "powers that be," she might ultimately supply the great markets of Liverpool, Manchester, and the North with many thousands of pounds of produce that the foreigner supplies. It is considerations like these that make us welcome the experiment now being made as a step in the right direction.

We understand that Mr. W. H. More, crown agent for Wales and Co. Monmouth, of Harlech, has the supervision of the work, and that the Commissioner has, on his recommendation, appointed Mr. T. Lewis, jun., Arthog, Dolgelly, to carry out the planting. Messrs. Clibran & Son have supplied specially selected trees from their Llandudno nurseries, so that all that skill and care can do to make the experiment a success will be done. The public generally will owe a debt of gratitude to the Commissioner and Crown Agent for their efforts in the direction of promoting tree planting in Wales, and we trust that success will attend the experiments now in hand.—FRUITMAN.

HORTICULTURAL SHOWS.

MANCHESTER.—MAY 31ST.

ON Friday last the annual Whitsuntide exhibition was opened at the Botanical Gardens, and the opinion, formed by competent judges who have attended almost annually since the formation of these grand shows, was that for beauty of effect and brightness there has been no previous show to compare with this one. This applies more especially to the grand display of Orchids, which completely filled the grand exhibition house from end to end. The central stage was a gorgeous bank, relieved from stiffness by stately Tree Ferns and Palms towering up to the roof, whilst similar banks arranged on each side had handsome backgrounds of Palms and draped pillars, the end being filled to the extent of some 300 feet with a fine group of Orchids exhibited by F. Hardy, Esq., Tyntesfield, Ashton-on-Mersey.

Coming to the annexe, and taking a view from the steps, the effect was even more pleasing. Below were the handsome first, second, and third prize groups put up with admirable effect by Mr. Wilkes, gardener to Miss Lord, Oakleigh, Ashton-on-Mersey, whose first prize was most worthily won. To attempt a description would only be to court failure; but it stood as an object lesson to all visitors, and shows Mr. Wilkes a true exponent of the beautiful in Nature. The second prize, exhibited by Mr. Elkin, gardener to Mrs. Agnew, Fairhope, was admirably done, whilst the third, by Mrs. Blair, was lacking in lightness of material.

Stretching beyond for a distance of 112 yards on each side were irregular banks of Rhododendrons gorgeous in colour, the tall standards inserted prominently adding much to their beauty. These came from Messrs. Jno. Waterer & Co., Ltd., Bagshot, Surrey. The centre space was devoted to nurserymen's exhibits, and here the same regard to effect had been carried out. In some cases tables had been absolutely necessary, but any formality was relieved by groups in between. The first to come under notice was the Reading firm of Sutton & Sons, and after the note on the Temple show in our issue of a fortnight ago little remains to be added. The unique Peas and Tomatoes, the handsome Gloxinias, herbaceous Calceolarias, and Begonias which stamp the firm Al in quality in every respect. A gold medal was accorded to Messrs. Sutton and Sons for this exhibit. If the Temple show was robbed of Mr. Jno. Laing's support not so here, for his group of Caladiums, which was deservedly awarded the gold medal, was arranged in the best possible form. Another noted firm who has been absent for many years we hail with pleasure—viz., Messrs. T. Rivers & Son of Sawbridgeworth, their thirty pots of Nectarines forming a pleasing feature, in addition to giving visitors some idea of the splendid culture carried out. The gold medal was unanimously awarded. The sorts exhibited were Early Rivers and Cardinal.

Hardy cut flowers were superb, everything good and noteworthy being brought together. Messrs. Cutbush & Sons' table was most tastefully arranged, the flowers being in miniature groups, with an edging of moss. Peonies, Pyrethrums, Crimson Giant Mignonette, Leschenaultia biloba major, Turner's Crimson Rambler Rose, the beautiful new border Carnations The Countess and Mrs. H. Cutbush, Calla Elliottiana being a few of the many good plants staged. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, had a handsome arrangement, conspicuous for the beautiful Irises, Eremurus himalaicus, Lychnis, and Improved Pink Carnation. Dickson's, Ltd., Chester, showed a charming collection, comprising Irises, Pyrethrums, Poppies, Eremurus himalaicus, Cypripedium macranthum, Amorphophallus campanulatus, and Seneciois carpatica. An interesting exhibit of some 150 pots of Violas, comprising many new varieties not yet in commerce, and about 100 cut Pansy blooms was much admired. Miss Hopkins, Mere Cottage, Knutsford, exhibited a useful collection of herbaceous cut flowers and Violas. Arranged in this part was the first prize collection of hardy herbaceous and alpine plants, arranged by Mr. Plant, gardener to R. P. Gill, Esq., Ashton-on-Mersey, a most interesting feature of the exhibition.

Coming to the Orchids, a prize of £20 was offered, Edwd. Ashworth, Esq., Harefield Hall, Wilmslow, gaining first honours with a remarkably fine stand set in a bank of Ferns. To enumerate all the choice varieties would take up too much space, but it may safely be said that the quality and quantity were everything to be desired. Fred Hardy, Esq., as previously mentioned, had fine examples, particularly *Lælia purpurata*, but there was rather a lack of finish to the group. Mr. Cypher of Cheltenham came in a capital first in the collection for nurserymen, and it is questionable if he has ever exhibited anything better. *Lælia purpurata* in variety, *Odontoglossums*, and *Masdevallias* were all superb. Messrs. Heath & Son, Cheltenham, were a very fair second, and Mr. Jno. Robson, The Dawns, Bowdon, third.

For the best collection of Cattleyas and *Lælias*, Thos. Statter, Esq., Stand Hall, Whitefield, had vigorous and beautifully flowered specimens of *Lælia purpurata* and *grandis*, the Cattleyas represented being *Mossiae*, *Mendeli*, and *gigas gigantea*; E. Ashworth, Esq., being second. Beautiful in this stand were Cattleyas *Mossiae*, *Reineckiana*, var. *Jno. Ashworth* and *Beatrice Ashworth*, the former being—with the exception of a tinge of violet with orange marking in throat—almost pure white. For ten specimen Orchids in bloom Mr. Ashworth was again in splendid form, grand being Cattleya *Mossiae*, *Dendrobium Dalhousianum*, and *Gramatophyllum Measuresianum*. Messrs. Heath & Son were an excellent second, *Dendrobium Dalhousianum*, *Phalænopsis grandiflora*, and *Cypripedium Lawrenceanum* being very good. The third went to Mrs. Hodgkinson, Bowdon. Mr. Cypher won the silver cup for *Dendrobiums* in bloom, *Falconeri* and *Beusoniae* being fine. Mr. Ashworth was a smart second. For the best collection of *Cypripediums* in bloom four competed, Mr. Billington, gardener to W. R. Lee, Esq., Beech Lawn, Audenshaw, having *Winifred Hollington*, *superbiens*, and *Goweri* as his best. F. Hardy, Esq., was a capital second; Thos. Statter, Esq., third.

Thos. Statter, Esq., won in the class for *Cypripediums* in bloom, the best amongst them being T. B. Haywood; Ed. Ashworth, Esq., being a fair second. *Odontoglossums* are always a great feature here, Mr. Stevens, gardener to W. Thompson, Esq., Stone, having a collection which, for merit in arrangement, good culture, and high quality, would be difficult to excel. F. Hardy, Esq., for second place, had some superb forms, the effect, to both flowers and artistic taste, being lost by the absence of greenery to furnish. S. Hinchcliffe, Esq., was a fair third. W. R. Lee, Esq., was awarded honours for new hybrid Orchid with *Lælio-Cattleya Aphrodite*; E. Ashworth, Esq., with *Cypripedium Lawrenceanum* × *Curtisi*, partaking much of the former parent; F. Hardy, Esq., third with *Oenanthum superbum*.

Amongst the trade exhibits not for competition the place of honour must certainly be accorded Messrs. Sander & Co., St. Albans, who, to quote an expression of one of the Judges, staged the finest collection which has ever been seen in Europe, the large gold medal, which is the highest award granted, being worthily bestowed. Messrs. B. S. Williams and Son and Hugh Low & Co. vied with each other with stands of the highest possible merit. Messrs. Charlesworth & Co. had a pleasing stand. Messrs. J. Cowan & Co. (Limited), Garston, Liverpool, had a most superior collection, the best of which were *Brassia verrucosa* major with over a score of handsome spikes, a grand variety of *Cypripedium caudatum* (very dark), *Lælia purpurata Boissieriana*, and *Brassia Keilliana trista*, with a small collection of *Amaryllis*. Messrs. W. L. Lewis & Co., Southgate, had a small but choice display.

A most meritorious collection of fruit, consisting of two bunches of Black Hamburgs and one Foster's Seedling Grapes, Tomatoes, and seeds of *Cycas revoluta*, was staged by James Watts, Esq., Abney Hall, Cheadle, and a dish of Brown Turkey Figs and a new Melon May Queen, a handsome, well flavoured, scarlet flesh variety by Mr. E. Gilman, Ingestre Gardens, Stafford.

Most deserving was the first-class certificate for the beautiful plant of Cattleya *Mendeli* Her Majesty, which was exhibited by Mr. Turner, gardener to F. Jacob, Esq., Cheam Park, Surrey; also to Edward Ashworth, Esq., for Cattleya *superba* Ashworthi, a charming variety, with white sepals and petals, the throat faintly suffused with lemon and slight violet blotch. Messrs. B. S. Williams & Son gained a first-class certificate for *Pescatorea Roezli alba*, slightly past its best; and a botanical certificate for *Brassia Keilliana trista*. Other certificates were granted, but owing to their not being placed at the time the report was taken they must be left for a short note next week. Messrs. R. Halliday & Co., Manchester, had a grand exhibit of horticultural buildings, to suit every taste. The Stott Company's trial of the new steam lawn mower

excited great interest, the unanimous opinion of competent judges being that for large establishments it cannot fail to prove of the greatest benefit. The show keeps open until the 6th of June.

The gardens indoors and out are in splendid condition, a real treat to all who toil in the busy city. It is earnestly to be hoped that Mr. Findlay and his able assistant, Mr. Paul, will meet with the success they so well deserve in catering so handsomely for the public. There is at the present time a grand specimen *Medinilla magnifica*, carrying 267 spikes, acknowledged by all who have seen it to be the greatest floral feature of the century. Messrs. Ker & Sons of Aigburth added greatly to the show by the splendid Palms which they exhibited.—R. P. R.

SOUTHAMPTON.—JUNE 3RD.

MUCH the best exhibition yet held was that on the date named by the Royal Southampton Horticultural Society in their grounds in Westwood Park.

Groups arranged for effect were the principal feature. In the largest class so close was the competition that equal first prizes were awarded to Mr. E. Wills, florist, Shirley, Southampton, and Mr. Peel, gardener to Miss Todd, Sidford Lodge, Shirley. The former had splendidly grown Palms raised on mounds, interspersed with Orchids, Gloxinias, and Crotons, the whole lightly arranged. Mr. Peel had well-grown plants of *Odontoglossum sphacelatum*, Palms, and Ferns neatly arranged.

In the smaller groups Mr. T. Hall, gardener to Sir S. Montague, South Stoneham, was an easy first with an arrangement that in every way did him credit. Mr. Kingsbury, Bevois Valley Nursery, was second with a creditable arrangement.

Mr. Carr, gardener to W. A. Gillett, Esq., Fair Oak Lodge, Bishopstoke, won premier honours with six Gloxinias, staging splendid plants. Mr. Hall was second. Mr. Carr won also with *Caladiums* and *Begonias*.

Herbaceous flowers were grandly represented in the class for twelve varieties, Mr. Ladham's winning easily, staging *Heuchera sanguinea*, *Dictamnus Fraxinella*, *Pyrethrum Sherlock* and *Mont Blanc*, *Hemerocallis Middendorfi*, *Iris Madame Chereau*, and *Erigeron aurantiacum*. Mr. West was a good second.

Roses were well represented. Dr. Seaton, Rutland Lodge, Bitterne, was the first prizewinner with a stand of even blooms. Mr. West second. Miss Kate Golding, Winchester Road, Portswood, secured the first position for the best dressed epergne, Miss Wills, Shirley, being second.

Vegetables were well staged by Mr. T. Hall in the class for six varieties, Early Milan Turnips, Duke of York Tomato, Webber's White Beauty Potato, and good Asparagus.

Non-competitive exhibits were numerous and good. Foremost was Mr. W. H. Rogers, Red Lodge Nursery, Southampton, with a magnificent bank of *Rhododendrons* and shrubs in pots. Mr. Wills staged a collection of nursery-grown plants. Mr. Ladham's a well stocked rockery, as well as a grand collection of cut blooms of hardy plants. From the Belmont Nursery, St. Denys, came a group of *Coleus*, *Lilium Harrisii*, and *Tuberoses*. Mr. Carr staged plants of *Odontoglossum vexillarium*. To Mr. Fudge and his assistant, Mr. Dallison, a word of praise is due for the admirable arrangement.

NORTHERN TULIP SOCIETIES' SHOWS.

BUTLEY.—MAY 31ST.

THE seventieth annual exhibition of this Society was held at the "Orange Tree Inn," Butley, near Macclesfield, on Friday last. Considering the tropical nature of the weather for the last ten days there was a very good exhibition, and there is no doubt that had ordinary weather prevailed for a fortnight before the show it would have been the best ever held in the old-world hamlet of Butley. Tulips, however, do not like a temperature of 82° in the shade, and have been roasted wholesale, and died in their youth. The principal prize at Butley is a silver cup for six rectified Tulips, one of each class.

The cup was given this year by the President of the Society, Mr. James W. Bentley of Stakehill. There was a good competition for it, and the Judges, Messrs. Woodhead (Staleybridge), Housley, and Booth (Stockport), awarded it to Mr. W. Kitchen of Marple, who staged Sir Joseph Paxton, flamed bizarre; Sulphur, feathered bizarre; Prince of Morocco, flamed byblœmen; Violet Aimable, feathered byblœmen; Annie McGregor, flamed rose; and Alice, feathered rose. The bloom of Sulphur was perhaps the finest example of that variety ever seen, and Prince of Morocco was superb.

A great many fine flowers were staged in the classes, and the usual standard varieties were well to the fore. Amongst the novelties that were good were Mrs. Collier, feathered rose; George Edward, feathered byblœmen; Elizabeth Pegg, breeder and feathered, and some bizarre seedlings of the late Mr. Lloyd. Following is a list of the awards:—

Silver cup for the best six rectified Tulips, Mr. W. Kitchen.

Feathered Bizarres.

- 1 Mr. Bentley, with Sir Joseph Paxton
- 2 Mr. Jones, with Sir Joseph Paxton
- 3 Mr. Bentley, with Masterpiece
- 4 Mr. Bentley, with John Mills
- 5 Mr. Bentley, with Magnum Bonum
- 6 Mr. Kitchen, with Lord Lilford
- 7 Mr. Jones, with Charles X.
- 8 Mr. Bentley, with Garibaldi
- 9 Mr. Dymock, with Typo

Flamed Bizarres.

- 1 Mr. Jones, with Sir Joseph Paxton
- 2 Mr. Bentley, with Sir Joseph Paxton
- 3 Mr. Bentley, with Dr. Hardy
- 4 Mr. Dymock, with Wm. Lea
- 5 Mr. Kitchen, with San José
- 6 Mr. Needham, with John Mills
- 7 Mr. Bentley, with Masterpiece
- 8 Mr. Bentley, with Wm. Wilson
- 9 Mr. Dymock, with Duke of Devonshire

Feathered Byblœmens.

- 1 Mr. Bentley, with George Edward
- 2 Mr. Jones, with Adonis
- 3 Mr. Bentley, with Universe
- 4 Mr. Bentley, with Friar Tuck
- 5 Mr. Bentley, with Lilas Grand Vase
- 6 Mr. Needham, with May Queen
- 7 Mr. Needham, with Elizabeth Pegg
- 8 Mr. Kitchen, with Violet Lillard
- 9 Mr. Dymock, with Seedling

Feathered Roses.

- 1 Mr. Kitchen, with Julia Farnese
- 2 Mr. Dymock, with Seedling
- 3 Mr. Prescott, with Mrs. Collier
- 4 Mr. Bentley, with Alice
- 5 Mr. Kitchen, with Modesty
- 6 Mr. Dymock, with Lizzie
- 7 Mr. Bentley, with Comte de Vergennes
- 8 Mr. Needham, with Mabel
- 9 Mr. Needham, with Dr. Vernon

Flamed Byblœmens.

- 1 Mr. Kitchen, with Chancellor
- 2 Mr. Bentley, with Chancellor
- 3 Mr. Dymock, with Seedling
- 4 Mr. Kitchen, with Adonis
- 5 Mr. Jones, with Lord Denman
- 6 Mr. Dymock, with John Hart
- 7 Mr. Needham, with Talisman
- 8 Mr. Bentley, with Friar Tuck
- 9 Mr. Dymock, with Seedling

Flamed Roses.

- 1 Mr. Dymock, with Madame St. Arnaud
- 2 Mr. Kitchen, with Queen Anne
- 3 Mr. Kitchen, with Madame St. Arnaud
- 4 Mr. Kitchen, with Aglaia
- 5 Mr. Kitchen, with Mabel
- 6 Mr. Bentley, with Annie McGregor
- 7 Mr. Bentley, with Sarah Headley
- 8 Mr. Jones, with Andromeda
- 9 Mr. Dymock, with Alice

The best feathered Tulip in the show was Mr. Kitchen's Sulphur, and Mr. Jones had the best flamed Tulip, Sir Joseph Paxton.

BREEDER TULIPS.

Three breeders, one of each class.—1, Mr. Bentley, with Sir Joseph Paxton, Mrs. Barlow, and Elizabeth Pegg. 2, Mr. Kitchen, with Sir Joseph Paxton, Rose Hill, and Ashmole's 114. 3, Mr. Needham, with Criterion, Mabel, and Martin's 117.

Bizarre Breeders.

- 1 Mr. Bentley, with Sir Joseph Paxton
- 2 Mr. Bentley, with Lloyd's 27A
- 3 Mr. Bentley, with Lloyd's 47
- 4 Mr. Bentley, with Storer's 106
- 5 Mr. Bentley, with Goldfinder.

Byblœmen Breeders.

- 1 Mr. Bentley, with Martin's 117
- 2 Mr. Bentley, with Wm. Parkinson
- 3 Mr. Bentley, with Martin's 117
- 4 Mr. Bentley, with Glory of Stakehill
- 5 Mr. Bentley, with Leech's Seedling

Rose Breeders.

- 1 Mr. Bentley, with Rose Hill
- 2 Mr. Bentley, with Queen of England
- 3 Mr. Jones, with Martin's 2
- 4 Mr. Bentley, with Mabel
- 5 Mr. Bentley, with Annie McGregor

Selfs.

- 1 Mr. Bentley, with Cygnet
- 2 Mr. Needham, with Citronella

WAKEFIELD.—JUNE 3RD.

AT no time in the history of this old-established Society has the influence of the weather had such a disastrous effect on the quality and numbers of the exhibits as on the present occasion. The beds, which twelve days ago were in their full glory, entirely collapsed during the tropical spell of last week, all the classes showing, with few exceptions in individual blooms, scalded petals, the bizarre class coming on to the exhibition table in the best condition.

Six Rectified Blooms.—First, Mr. E. Lister with Sir J. Paxton, feathered, Sir J. Paxton, flamed, Seedling, Geo. Hardwick, Industry, and Mrs. Lee. Second, Mr. Mellor with Dr. Hardy, Masterpiece, Bessie, G. Hardwick, Annie Macgregor, and Mrs. Lee. Third, Mr. Alf. Moorhouse; fourth, Mr. J. Hardwick; fifth, Mr. W. Calvert; sixth, Mr. G. Gill; seventh, Mr. Thos. Maddock; eighth, Mr. H. Brown.

Six Breeders.—First prize, Mr. Alf. Moorhouse with Sir J. Paxton, G. Hardwick, Rose Hill, Hepworth, and Talisman. Second, Mr. E. Lister with Sir J. Paxton, Dr. Dalton, and others. Third, Mr. G. Gill; fourth, Mr. W. Mellor; fifth, Mr. W. Calvert; sixth, Mr. Thos. Maddock; seventh, Mr. J. Hardwick.

Three Breeders.—First, Mr. Wm. Mellor, with Sir J. Paxton, Beauty of Highchurch, and Isabel; second prize, Mr. E. Lester, with J. Bright and two seedlings; third, Mr. J. Hardwick; fourth, Mr. Geo. Gill; fifth, Mr. Alf. Moorhouse; sixth, Mr. W. Calvert; seventh, Mr. H. Brown; eighth, Mr. Thos. Maddock.

For Feathered Bizarres.—Mr. W. Calvert was first and second; Mr. Alf. Moorhouse, third and fourth; Mr. Thos. Maddock, fifth; Mr. Ed. Lester, sixth and seventh; and Mr. Wm. Mellor, eighth.

Feathered Byblœmens.—Mr. Geo. Gill, first and sixth; Mr. Alf. Moorhouse, second and seventh; Mr. Wm. Mellor, third; Mr. Wm. Calvert, fourth and fifth; and Mr. Freeman, eighth.

Feathered Roses.—Mr. E. Lister, first and sixth; Mr. Alf. Moorhouse, second and third; Mr. Geo. Gill, fourth; Mr. Wm. Mellor, fifth; Mr. Wm. Calvert, seventh; and Mr. Freeman, eighth.

Flamed Bizarres.—Mr. E. Lister, first and second; Mr. Thos. Maddock, third and seventh; Mr. Wm. Calvert, fourth and sixth; Mr. Alf. Moorhouse, fifth; and Mr. Wm. Mellor, eighth.

Flamed Byblœmens.—Mr. Alf. Moorhouse, first; Mr. E. Lister, second and sixth; Mr. Wm. Mellor, third and fourth; Mr. Freeman, fifth and eighth; and Mr. H. Brown, seventh.

Flamed Roses.—Mr. G. Gill, first; Mr. Alf. Moorhouse, second and fourth; Mr. Freeman, third; Mr. H. Brown, fifth and eighth; Mr. Ed. Lister, sixth; and Mr. Wm. Calvert, seventh.

Bizarre Breeders.—Mr. Ed. Lister, first and third; Mr. Alf. Moorhouse, second; Mr. Wm. Calvert, fourth and fifth; Mr. Geo. Gill, sixth; Mr. Jesse Hardwick, seventh; and Mr. Thos. Maddock, eighth.

Byblœmen breeders.—Mr. Geo. Gill, first and second; Mr. Wm. Mellor, third and fifth; Mr. Thos. Maddock, fourth; Mr. J. Hardwick, sixth and seventh; and Mr. Ed. Lister, eighth.

Rose Breeders.—Mr. Alf. Moorhouse, first and second; Mr. Wm. Mellor, third and eighth; Mr. Ed. Lister, fourth and fifth; and Mr. Geo. Gill, sixth and seventh.

Premier Breeder.—Mr. Ed. Lister with Sir J. Paxton. *Premier Flamed.*—Mr. Ed. Lister with Sir J. Paxton; a remarkably fine example. *Premier Feathered.*—Mr. W. Calvert with Masterpiece.



HARDY FRUIT GARDEN.

Thinning Fruit.—*Apricots.*—Small ill-placed fruits should be thinned from the trees without delay, so that the remaining fruits may have every facility for swelling freely. Many of the improperly fertilised fruits fall prematurely because they are not furnished with the necessary impetus for developing; others swell during the early stages, but afterwards fall, the stoning process being a test of their vigour.

Thinning the fruit is specially necessary with stone fruits because of the large amount of nutriment a large number of fruits draw from the soil simply to provide material for the development of the stones, while the flesh, the essential part for which the fruit is cultivated, suffers. Thinning operations may take place at intervals. First remove the small fruits and those swelling in awkward positions, such as the back of a branch, pressing against wall or wires, or otherwise inconveniently situated so as to be ultimately injured. The next thinning may take place when the fruit reaches the size of small nuts; the final being after the stoning, when the fruits are then apportioned at the proper distances asunder, according to the vigour of the trees, the size of the variety, or the strength of individual branches.

Peaches and Nectarines.—Following Apricots, Peaches and Nectarines need attention next, all small and useless fruits being removed early. Even if the crop is poor, owing to the indifferently ripened condition of the wood last season, there will still be fruits that need removing. If the fruit has set thickly thin out the weakest as soon as possible, giving a fair chance to the best to swell freely. Go lightly over the trees one after another, and return to them again in the same rotation when the fruit has swelled further. The ultimate distance at which a fair crop may be left can be kept in mind, so that this knowledge will guide the operator in determining the number to remain at each thinning. At the final thinning, after stoning, large varieties may be left 8 inches asunder, smaller 4 to 6 inches. These distances must be approached gradually by thinning at several different times.

Plums and Cherries.—The weather was favourable to fertilisation of the bloom, consequently there has been a good set, and there seems every prospect of good crops, notwithstanding the rough winds since prevailing. Some relief must at least be afforded to wall trees. Clip out the malformed fruits and partly reduce the size of clusters. Attention to reducing the number of fruits must promote the growth of those remaining, giving them increased and permanent vigour.

Apples and Pears.—There is every probability of Apples requiring free thinning, though at present the fruits are scarcely forward enough. Pears have reached the early thinning stage, and those varieties that are plentifully set with fruit may have the preliminary attention requisite, following on at intervals, because heavy crops cannot be finished well and at the same time not overtax the trees. Scantily furnished trees may remain some time longer. Trees on walls are, by their position, favourable to the development of fine fruit, so every attention ought to be given them to assist the fruit in reaching its greatest possibility of size and attaining its best flavour.

Gooseberries.—These are usually well thinned as soon as the berries are large enough for cooking purposes. If fine, large fruit is required for dessert, the thinning of a few trees for this purpose should be well carried out, avoiding gathering all the berries from a few branches and none from others.

Syringing Wall Trees.—Much benefit accrues to wall trees by washing them over occasionally with the garden engine, which removes numbers of aphides and red spider and prevents the establishment of others. Should, however, these insects increase to any extent before attempts are made to destroy them, a dose of some insecticide ought first to be applied. For aphides at the points of shoots, dipping the latter in tobacco water or a softsoap solution is a ready method. Also dusting with tobacco powder and shortly afterwards washing it off. Red spider is more difficult to deal with, as the insects are small but active, and favour the under sides of the leaves. Flowers of sulphur is an excellent remedy when it can reach the pests. The best method of applying it is to mix it with softsoap solution, 2 ozs. of each to the gallon, and then spray it over the foliage, reaching the under sides.

Watering Wall Trees.—Now that fruit is set and swelling, the demands of the roots and foliage must be met by adequate moisture in the soil. The ground at the foot of walls frequently becomes dry, which causes weakly sap movement and a consequent attack of insects. Dry soil also causes roots to descend in search of moisture, and this promotes strong sappy growth. It is, therefore, important not only for the current needs of trees but also for their future welfare that the

soil be maintained moist. Liquid manure can be given beneficially to moist soil but not to dry, and whenever there is any liquid to dispose of see that the ground is first soaked with clear water in order that the advantages of stimulants may be reaped by the roots of trees in bearing, to which only, and trees in a weakly condition, liquid should be applied.

Stopping Currant Shoots.—The side growths of Red and White Currants may now be stopped at the third joint, which will leave three or four large leaves at the base. The leading shoots should extend unchecked. Aphides often infest the points at this season, and the stopping frees the trees from their presence. If attacking the leading shoots, syringe with insecticide. These unhealthy conditions point to the necessity of assisting the roots.

FRUIT FORCING.

Vines.—*Early House.*—As soon as the Grapes are cleared from the Vines give the inside borders a thorough supply of water, followed by liquid manure, or a top-dressing of some approved fertiliser washed in. This will help to plump the buds and encourage root action, so essential to the activity of the laterals, which, if allowed moderate extension, is the best safeguard against premature ripening of the foliage. Keep the ventilators open constantly, even in cold weather. Syringe thoroughly to cleanse the foliage, especially of red spider, and repeat occasionally, or as found necessary, to keep the old or main leaves healthy. Fresh laterals will soon be produced, which should be pinched so as to maintain an even growth all over the Vines. The mulching or covering having been removed from the outside border, with just enough of the lighter part left to protect the roots, a good watering with liquid manure may be given, or a top-dressing of chemical manure applied and washed in. In watering outside borders regard must be had to the condition of the soil, only supplying water when required. Avoid heavy mulchings inside or outside; an inch or two of short stable manure, with the long strawy portion shaken out, answers admirably.

Second Early House.—Vines started at the new year have the Grapes ripening. Maintain a circulation of warm, rather dry, air constantly, increasing the ventilation early. Keep the floors well damped on hot days, with a view to check excessive evaporation, allowing the temperature to fall to 60° at night when cold, or 65° when warm, with sufficient warmth in the pipes to prevent the moisture condensing. If there is likely to be any want of finish, allow the Vines time by giving a long rest at night. Examine the border, and if there be any lack of moisture supply water thoroughly in the morning of a fine day, and when soaked in mulch with a little light material. This will probably be sufficient to keep the border moist until the Grapes are cut, if not, it must be repeated. Moderate moisture, even after the Grapes are ripe, is essential to the health of the foliage. The moisture will assist in keeping the Grapes plump, and prevent Hamburgs turning red and white Grapes brown, instead of retaining their jet black and rich golden amber colour respectively. A double thickness of herring or single pilchard netting drawn over the roof lights is effective and necessary where the panes of glass are large. Allow a moderate extension of the laterals to encourage root action, but keep gross laterals well in check, so as to cause an equal distribution of the sap. When ripe, a minimum temperature of 60° will be sufficient.

Midseason Houses.—Vines in these will be in various stages of development according to the time of starting. Those that have stoned will be swelling the berries fast, and require liberal nourishment. Top-dressings of the advertised fertilisers are excellent, supplying from 2 to 4 ozs. per square yard at intervals of about three weeks, always after watering, and then washing in moderately. Where stable or cowhouse drainings are available they should be utilised, diluting with five or six times the bulk of water. The drainage being good, the watering, whether with water or liquid manure, will need to be continued weekly if the border is limited to a small area, or fortnightly intervals if moderately large, until the Grapes are somewhat advanced in colouring, when it must be stopped, yet the border should not be allowed to become so dry as to affect the foliage injuriously.

Admit a little air constantly at the apex of the house, and ventilate freely in the early part of the day, closing early with sun heat and a genial condition of the atmosphere. Fire heat will only be necessary to secure 60° to 65° at night, and 70° to 75° by day, keeping through the day at 80° to 85°, and closing sufficiently early to run up to 90° or 95°. This will insure the berries swelling to a good size, and with a free circulation of air a good finish may be secured.

Grapes Stoning.—During this process the Vines should have a regular temperature of about 65° at night, and 70° to 75° by day from artificial heat, if the Grapes are wanted ripe as soon as possible. If not 65° only need be maintained on dull days, but admit air in good time on the sun appearing, always a little at 70° or before after a spell of dull weather, so that any moisture will be dissipated before the sun acts powerfully on the foliage. Allow a moderate lateral extension, but avoid overcrowding, and supply nourishing food, such as superphosphate, nitrate of potash, and gypsum, so as to provide phosphoric acid, moderate nitrogenous matter (ammonia), nitrates, and sulphate, a small amount of magnesia being of great service to Vines. Supply liquid manure occasionally, but avoid overfeeding luxuriant Vines, especially with ammoniacal manures, giving in their case superphosphate or steamed bonemeal. This will enable the Vines to maintain steady progress and finish their crops, while storing food for the coming season's bearing.

Grapes Scalding.—Muscats and Lady Downe's in the later stage of stoning are liable to scald; therefore air should be admitted more freely

for a fortnight or three weeks until colouring commences, when all danger will be over, provided the ventilation is free during the day and a little left on constantly. Black Hamburgs are sometimes scorched when the berries are exposed to the direct rays of the sun, which can usually be avoided by a good spread of foliage, and remedied by a bountiful supply of air by day and a little ventilation constantly at the upper part of the house, with a genial warmth in the hot-water pipes.

Early Muscat Houses.—The fruit ripening will need a dry condition of the atmosphere as compared with Black Hamburgs, but avoid great aridity, or the foliage will fall a prey to red spider. Muscats require a long time to ripen thoroughly, and must be given it to acquire the golden amber colour so much esteemed and characteristic of high quality. Do not allow any deficiency of moisture in the borders, for Muscats are gross feeders, but give either tepid liquid manure or top-dressings of the advertised fertilisers washed in. A mulching of short, sweet, rather lumpy manure, an inch or two thick, will supply organic matter or humus with the same nourishment, keeping the surface moist and saving watering, as well as encouraging surface rooting and giving off moisture and ammonia gradually (the latter being to some extent taken in by the foliage and utilised by the Vines). Provide a circulation of air constantly, preventing the moisture condensing on the berries by sufficient warmth in the pipes to insure a changing atmosphere. This is the best preventive of "spot," it not being possible, as we have proved by experiments, for the fungus spores to germinate in a dry atmosphere and on an exhaling surface.

Lateral extension is a good safeguard against shanking, along with a steady temperature and a not over-wet condition at the roots. Avoid sudden fluctuations and depressions. Keep the night temperature at 65° to 70°, 80° to 85° by day with a little sun, and 90° to 95° with it in full force. Ventilate early, and regulate the amount of air by the sun's increase, and so with its decline reduce early, securing as long a day of ripening from sun heat as possible. The old leaves of Muscats, also the berries directly exposed to the fierce rays of the sun, are liable to be scorched after a period of dull weather. In very bright periods draw a single thickness of tanned netting over the roof lights, which, without impeding too much light, will break the solar rays and prevent scorching.

Late Houses.—Any late varieties of Grapes in flower should have a circulation of dry warm air and a temperature of 70° to 75° at night, rising to 85° or 90° from sun heat, as without this the shy setting varieties do not set well. Carefully fertilise the flowers, and preferably with pollen from different varieties. Thin the berries freely as soon as they are set, but this in the case of shy setting sorts must be confined to the removal of the smallest and imperfect berries in the first instance, deferring the general thinning until the properly fertilised berries can be determined by their free swelling. There must not be any deficiency of moisture at the roots, therefore afford liquid manure copiously after the Grapes are thinned and swelling, or a top-dressing may be given of some approved chemical manure, distributing it evenly on the surface and washing in. Outside borders, if the weather be dry and the soil light, should be well watered and have the surface mulched, feeding with liquid manure or top-dressings.

Vines in Pots and Supernumeraries for Next Year's Fruiting.—**Young Vines.**—Potted Vines should have the leading shoot or cane stopped at 8 to 9 feet, and the laterals or sub-laterals stopped at one leaf as produced. Supernumeraries in recently planted houses may also have the leading shoots pinched at the length indicated for Vines in pots—that is, those intended to bear next season. Young Vines, after they become established, should be encouraged with judicious watering at the roots and abundant atmospheric moisture, closing the house early on fine afternoons, so as to secure a long day's work from sun heat.

Figs.—**Ripening.**—Perfect fruit can only be had by keeping it free from damp during the ripening process, and affording a free circulation of air. Maintain the night temperature at 60° to 65°, 70° to 75° by day, and with sun heat 80° to 90°. It is necessary to admit a little air constantly, as this prevents the deposition of moisture on the fruit and prevents "spotting." Moderate atmospheric moisture is necessary for the benefit of the foliage, but an occasional damping will be all that is necessary. If red spider become troublesome during the ripening gather the fruit closely, and then give the trees a forcible syringing, directing the water against the under side of the leaves, so as to dislodge the pests, and clear water being used and air admitted rather freely it will not interfere with the ripening of the fruit remaining, and by pursuing this course red spider may be kept from increasing very much until the fruit is gathered, when it may be destroyed by applying an insecticide.

Second Crops of Figs.—Liberal treatment is essential to insure the second crop of fruit swelling satisfactorily, syringing twice a day keeps red spiders in check, and affording liquid manure when watering is necessary; trees in pots require it daily, and those in borders once or twice a week, according to the vigour of the trees and extent of the rooting area. The second crop must be thinned when the Figs are of the size of small Walnuts, and in thinning reserve the larger fruits at the base of the shoots.

Young Fig Trees for Next Season's Forcing in Pots.—Those coming on for this purpose must not be neglected or they will disappoint the grower. Afford the trees all the light possible, keeping them as near the glass as consistent with their growth without touching, syringing well and supplying with liquid manure so as to secure a sturdy, short-jointed, well-fed growth, and when this is completed they may be placed outdoors in a sunny corner to rest, but they must not be neglected for water or syringing, and they must have the wood thoroughly ripened in the case of trees required for early forcing.

Melons.—Plants in flower require a little air constantly with a free circulation on fine days, fertilising the flowers as they become fully expanded, and when a sufficient number of fruits are set on a plant remove all the others and all flowers. Three or four fruits are as many as a healthy plant can bring to a good size and perfect, of fine, luscious quality. Plants swelling their fruits should have liberal supplies of water, supplying liquid manure or top-dressings and washing in, additions of fresh soil being made to the hillocks or ridges as the roots protrude.

Young plants in pits and frames with the shoots trained over the surface must be thinned to four, taking two to the front and two to the back, keeping the laterals rubbed off to 6 inches from the main stem and pinching the principal shoots when 12 to 18 inches from the sides of the frames or pits. The laterals will show fruit at the first or second joint, and the flowers being fully expanded fertilise them about noon on fine days, leaving a little air on constantly to prevent the condensation of moisture, a moist, close atmosphere being fatal to a good set. Pinch out the joints of the shoots one joint above the fruit, and after three or four fruits are set upon a plant remove all others. Keep the laterals closely pinched and thin them if likely to crowd the principal leaves.

Afford weak liquid manure, but keep it from the foliage, and sprinkle the plants in the afternoon of fine days, but not over the stems, closing about 3.30 P.M. to 4 P.M., or so early as to raise the temperature to 90° or 95°, and ventilate early in the day, or from 7.30 to 8 A.M., keeping through the day at 80° to 85° or 90°, and reduce the ventilation gradually. Keep a sharp look out for aphides and fumigate on two or three consecutive evenings moderately, an overdose doing great injury. If canker appears rub quicklime into the affected parts. Shade from bright sun, but only to prevent flagging.

THE BEE-KEEPER.

APIARIAN NOTES.

SWARMING.

IN some places swarming has been taking place during the last week. These early swarms are, as usual, near wooded and watered places, hives situated within bee flight but outside the shelter usually being about three weeks later. Early swarms are not always the most profitable, as between the swarming and the honey season proper bees very often require to be fed.

The queens of early swarms become exhausted at the time those of later hives are at their best, which is the time likely to be profitable to the bee-keeper, continuing throughout the honey season. Keeping all the swarms will give the largest yield of honey in a lengthened honey season. But swarms coming just about the time or a week or so before the Clover will give the best results.

So very liable are early swarms to repeat the swarming, owing to the exhaustion of the queen, which in some seasons render the profit nil, that the bee-keeper should endeavour to prevent it, which is easily done by introducing young fertile queens. The best time for doing this is about ten days or so after the issue of the swarm. In the event of young fertilised queens not being at hand, on the eighth day after swarming divide the old stock into nuclei, and the weather being favourable the queens will soon be fertile. When this is so strengthen the nucleus by adding gradually the combs from the prime swarm. When that is accomplished depose the old queen; the bees having now neither queen nor combs, and the former nucleus standing on the site of the swarm or contiguous to it, the bees of the latter will fraternise at once without any trouble.

The profit from the apiary depends almost, if not wholly, on attending to the simple rule of having youthful queens to every hive, while the toil and trouble by incessant swarming is reduced to a minimum.

The honey season usually begins with us about the 21st of June, and bees have frequently to be fed till that date. Failing that, many stocks would die, while others would become unprofitable.

With the long dry weather and a falling barometer, a continuance of rain may be expected, but whether it rains or continues dry, honey will not flow, so bees must be fed till rain comes, and then, with a summer temperature, honey will flow to the delight of bees, and profit to bee-masters.—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES.

THE bright days experienced during the past week have been perfect bee weather, although the nights have been rather cold, on one occasion the thermometer going as low as 36°; but the maximum temperature was reached on the 30th ult., when a thermometer placed on a stand in the shade registered 84°. Bees are increasing rapidly. A note should now be made of the best stocks, with a view of raising queens from the best workers. By taking this simple precaution much benefit will result in the future,

and the bee-keeper will be rewarded with a race of good hardy workers, without going to the expense of procuring those that have often nothing but their bright markings to recommend them.

Bees are now working freely on field Beans. These are not very plentiful, owing to the severe winter. The honey procured from these flowers is of good flavour, and many people prefer it to that obtained from White Clover, but being a pale brown in colour it does not sell so readily. The Horse Chestnuts and the May are now in full bloom, the latter not so good as usual, owing probably to the late severe winter. The bees, however, work freely on them, and during bright days when the temperature is high collect honey of a not very high quality. They also obtain a plentiful supply of pollen, which is so necessary for the well-being of the thousands of young bees that are now hatching out daily.

Stocks should now be examined, and those that are well crowded with bees should be supered either with sections or shallow frames for extracting purposes. Bees are more backward than usual this season, and I have heard of no swarms in this locality. Every day will now make a great difference in the strength of the various stocks, and as I manage my bees on the non-swarmling system I have for some years past found no difficulty in preventing the swarming mania, which is so annoying to bee-keepers when honey production is the chief aim.

I have already supered several of my strongest stocks. The bees commenced working in the supers at once, a proof that they are in the right condition for the purpose; others that are not so forward will be assisted with frames of brood and bees from other stocks. Bees unite readily at this time of the year without sprinkling with syrup, flour, or anything else. It is worse than useless supering stocks that are not of sufficient strength. The aim should be to have all stocks intended for honey production crowded with bees, and with fine weather success will follow.

PREVENTION OF SWARMING.

On May 10th I secured a swarm of bees and placed them in a straw hive, and being a novice in bee-keeping I should like to know how to prevent them from swarming again this season. Would a bell-glass fixed on the top for them to work in prevent it? or could I put them in a bar-frame hive? and how?—F. G.

This is the earliest swarm I have heard of this season, and if fed with thin syrup during the spell of cold weather experienced a fortnight ago the hive should now be nearly full of comb, and if the weather is favourable will soon be ready for supering, either with a crate of sections, or, if preferred, a bell-glass. But this should not be done until the hive is full of comb. Either would, in all probability, prevent them swarming again this season. A well-filled bell-glass has a very good appearance, but is not so serviceable as sections.

The crate to hold the sections should be made different to those in use for frame hives, the bottom of the crate being boarded over, only leaving a hole in the centre to fit over the hole on top of the hive. This will allow ample space for the admittance of the bees. Space must be allowed under the bottom of sections to allow the bees to pass from one to the other; cover the whole up warm, so that there is no escape of heat. Some of the best sections I have seen, and which took first prize in a strong competition, were worked on the top of straw skeps and treated as above.

This would be a better plan than to transfer them to a frame hive now, as the combs would be too tender to handle satisfactorily. They may be transferred to the hive as soon as the honey flow is over, or may be allowed to remain in the straw skep till next spring. The first swarm could then be put into a frame hive; three weeks afterwards the bees remaining in the old stock may be driven and placed in another frame hive, as there would then be a young queen, and all the brood would be hatched out.

Procure a bar-frame hive holding not less than ten frames standard size from one of our good makers who make a speciality of these goods, such as Messrs. Neighbour & Sons, High Holborn, London. A hive of this size will hold a crate of twenty-one sections, and is also useful for placing shallow frames on the top for extracting purposes. Afterwards the hives may be home-made, but whatever hive or frame is used, have them all made the same size, as they are very useful for interchanging and other purposes. —AN ENGLISH BEE-KEEPER.

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

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* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Dwarfing Sweet Peas (C. R. P.).—We suspect that topping the plants now would not have the effect you desire, but you might try a few experimentally. We have seen beautiful beds of Sweet Peas by slanting light, twiggy pea sticks over them, somewhat in the form of an inverted saucer. These arrested the vertical growth of the plants, and with a little guidance and gentle handling the flowering parts were evenly distributed about 18 inches from the ground. Rough handling causes rupturing of the tissues, and is very injurious. There is not sufficient time for answering your other question this week.

Odontoglossum cirrhosum Developing Its Spikes (The Boy).—This depends on the season; at this time of year the flowers would take about three to four weeks from the time the buds are seen. This *Odontoglossum*, however, has a bad habit of occasionally remaining stationary for a long time, and we have known spikes to be over six months opening. This usually, however, indicates a check, and is sometimes caused by an unduly low temperature during winter. Should this happen, it is a very bad practice to place the plants in a strong heat with a view of remedying matters, as this only serves to weaken the plants.

Chrysanthemums (The Boy).—Cutting down the plants is not the best way to produce the finest blooms, especially of the incurved section. Plants so treated produce excellent results for grouping or decoration where dwarfness is imperative. However, as they are cut down you must make the best of them. By all means "take" the first buds that form after cutting down if they do not show before the middle of August. If they do this remove the bud, and run the shoots on to the next break. Should there happen to be any naturally late-flowering varieties amongst them the buds showing on these before the middle of August had better be retained. Pinch off all side or surplus shoots as fast as they grow, so that the energy of the plants will be confined to the selected stems.

Treatment of Freesias (Novice).—In all probability the bulbs were not ripened last year. This may have resulted largely from the cold wet summer. A strong foliage growth, under the full influence of sun and air, is essential after flowering, and after the leaves die down, as they must do gradually and not prematurely. The pots containing them should be stood in a very sunny position, the soil kept quite dry. When the plants are forced early the leaves are often of necessity then drawn up tall and thin, when it is almost impossible for large bulbs to form and ripen. Your non-flowering plants will be best in a frame, with the sashes drawn off on fine days, and nights too; then, if stout foliage is developed, large bulbs will be produced; but if the plants are already drawn, through being grown in a house, they cannot produce bulbs equal to those sold by dealers for producing early flowering plants.

Cucumber Plants Stationary (S. G. Randall).—The Cucumber plants had abundance of healthy roots, the soil being a mass of quite clean fibres, not any trace of eelworm, and plants with such roots usually grow and bear well under suitable cultural conditions. The soil is also an excellent medium, plenty of mineral matter in it, so that feeding may be practised to almost any extent. The stem of the plant was sturdy, short jointed, and the growths corresponded, being perfectly free from any parasite, but a solitary green fly. There was no trace of fungus on the leaves, which had good substance, the hairs being quite normal, even in the yellowish parts, they not being in the least disturbed, as usually is the case when the mycelial hyphae of fungus plants pervade the tissues. We failed to discover any threads in these, the cells containing active protoplasm and nuclei—that is, they were growing. Indeed, we cannot make out anything wrong except the yellow colour of the leaves, this being confined to the older ones, and is a sort of scorching, which might have been prevented by timely shading, for there is no deficiency of chlorophyll in the leaves. We advise shading—lightly coating the lights with a wash formed of whiting and skim milk, and applying when the glass is dry with a whitewash brush, putting on as lightly as possible, so as to diffuse rather than obstruct

the sun's light and heat. Then maintain a moist genial atmosphere of 65° to 70° at night, 75° by day artificially, and 80°, 90°, or 100° with sun. This and plenty of moisture appears all the plants require, but there would not be any harm in using a little soot, say a small handful per square yard, and washing in moderately. It will improve the colour both by the nitrogenous matter and the iron, and it is useful against parasites.

Peach Tree Casting its Fruit (H. W. N.).—The fruit has fallen in the earliest stage of stoning, and arises either from imperfect fertilisation or the matter stored in the preceding season for the initial formation of the stone being inadequate, or what is known culturally as the imperfect ripening of the wood. We have had many such cases in our experience, and we invariably found that lifting as early in the autumn as safe was the best preventive, combined with cross-fertilisation and the supplying of phosphatic, potassic, and calcic matter to the soil. Some varieties are prone to this defect, more so in some soils than in others; but it may generally be overcome by replanting after supplying calcareous gravel if the soil is very strong, or clayey marl if light. This we advise in your case, and it may be well to remind you that the variety you name is very seldom satisfactory without recourse to cross-fertilisation—that is, taking pollen from another variety and different in race—say, Royal George, and applying it to the stigma of the other showing the defect.

Poinsettias (Rustic).—The best way to propagate these plants is by portions of the ripened stem. Pieces two joints in length should be inserted in sandy soil in thumb pots, leaving the top eye just out of the soil. If placed in brisk moist heat the portions soon make growth and form roots. This must be done while the plants are in a dormant state and have enjoyed a good rest. You will be too late for this system, as we have no doubt your plants have started into growth. Young shoots 2 and 3 inches in length root freely enough if taken off just where they start from the old stem. The cuttings should be inserted in sandy soil with a little sand for the base of the cutting to rest on before they flag. After insertion water well with tepid water and place the pots under hand-lights or bell-glasses in a close warm house. If they can be plunged into a gentle hotbed and covered with the hand-light all the better. They root well without bottom heat, but quicker by its aid. The cuttings should be shaded from bright sunshine and be dewed with the syringe daily. When rooted gradually harden them and grow them for a time in an intermediate temperature.

Cucumbers Unsatisfactory (Nil Desperandum).—We have carefully read your letter, and find nothing to which exception can be taken as regards management, and regret to say that the symptoms are those of plants suffering from eelworm, while the collapse of the lower leaves is consistent with the Cucumber mildew (so-called) of the United States of America, where it has been noticed to be very destructive and widely diffused since 1893, and unfortunately has appeared in this country in two or three places during the current season. It is closely allied to the downy mildew of the Vine. The destruction of the affected leaves and spraying with fungicides are the best remedial measures. Instead of syringing so late in the afternoon we should close soon after mid-day, well damping the house, and run up the temperature to 90° or 100°, continuing this day by day, and only shading in the morning to prevent flagging. With plenty of moisture in the house there is little danger of scorching, and on the maintenance of a genial atmosphere and a high temperature without sudden fluctuations or depressions depends the production of straight and clean fruit quickly. Ventilate early and carefully in the early part of the day, it not being necessary to do more than to effect a change of air, as with the shading you can keep a temperature of 90° or more through the day from sun heat with perfect safety. Give the plants the benefit of a light sprinkling of soot on the soil, using a small handful per square yard, and wash in moderately. It will improve the colour of the leaves and fruit. We do not know of any small work that meets such cases as yours.

Tomato Plants Losing their Lower Leaves (J. B.).—The leaf tissue is mainly destroyed and the cell contents diffused, the juices being mainly dissipated by evaporation and partly by absorption. What has caused this appears to have been external, there being considerable distortion of the hairs; yet they are not discoloured, as would be the case had they been destroyed by a corrosive or alkaline substance. Something has certainly acted injuriously on the epidermal tissue and penetrated or interfered with the functions of the leaves. It appears to be that of an alkali such as that of soap. There is no trace of any organic disease, except possible threads of the "sleeping" disease fungus (*Fusarium solani* or *F. lycopersici*), which has a general resemblance (under the microscope) to "black stripe" fungus (*Macrosporium solani* or *M. tomati*), figured on page 481; but the mycelial hyphæ is much stouter, the conidiophores not being materially different except in septa, which is confined to the conidial part, that being branched, fusiform-falcate, three to five septate, and individually appear as a crescent, which divides into parts corresponding to the septa, all falling and assuming a globose form, but occasionally the spores germinate on the plant. The round bodies generally germinate on alighting on a moist surface, such as a Potato or Tomato leaf or stem, preferably the older to the younger leaves, stems, "apple," or fruit, undergrowing stem or tubers, and the germinal tube entering the tissue reproduces the "fruits." The spores may rest weeks or months, and on coming into contact with a Potato or Tomato plant stem in the ground grow and enter it, the plant then becoming stationary in growth, the lower leaves turning yellow and the stem becoming brown at the affected part; so that it is only a question of days or weeks before it is encircled and the plant

destroyed. During the time of its action the plant is stunted, because its supplies of nutriment are intercepted and appropriated by the fungus, hence the term of the "sleeping disease." There is the yellowness and the clamminess so characteristic of the fungus, but this is also that of tissue injured by alkaline substances or impaired by the acid reaction of oils, such as accrues from the use of petroleum imperfectly emulsified or the indifferent saponification of oils and fats, as in poor quality softsoap. If there is any "sleepy" disease in your plants it is in the stem, either below or above ground, but as you have not sent this we are unable to give a definite opinion. The *Fusarium* is frequently associated with the Potato disease fungus (*Phytophthora infestans*), the mycelium of both being interlaced, and then the destruction of the Tomato plant is speedy and complete, there not being any sleepiness in the case. Unless there be the *Fusarium* on the stem—there certainly is not any discoverable on the leaves, but symptoms of it—you need not be alarmed, for the hot weather and the syringing with the insecticide are sufficient to account for their condition.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*G. J.*)—1, *Iris laevigata*; 2, *Polygonum Brunonis*; 3, *Philadelphus floribundus*; 4, *Geranium pratense*. (*M. B.*)—1, *Ranunculus aconitifolius flore-pleno*; 2, *Hemerocallis flava*; 3, *Cytisus alpinus*, the Scotch Laburnum. (*B. P.*)—*Veronica gentianoides*. (*Y. G.*)—1, *Oncidium sphacelatum*; 2, *Maxillaria tenuifolia*; 3, *Cypripedium barbatum*. (*F. J. S.*)—1, *Todea superba*; 2, *Asplenium bulbiferum*; 3, *Woodwardia radicans*. (*Z.*)—1, *Hippophaë rhamnoides*, the Sea Buckthorn; 2, a *Polygonum*, species not determinable; 3, *Sisyrinchium gramineum*; 4, *Corydalis lutea*; 5, *Cornus sanguinea variegata*; 6, *Ægopodium podagraria*, the Gout Weed. Your Laburnum is *Cytisus Adami*. It has long been known, and its history frequently given in our columns. (*F. M. P.*)—*Wellingtonia gigantea*. We have never heard of its being injurious to any animals.

COVENT GARDEN MARKET.—JUNE 5TH.

THE market is now affected by the holidays, and prices are very irregular, particularly Strawberries and Grapes.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, Nova Scotia, per barrel	10	0	to	21	0	Cobs, per 100 lbs.	10	0	to	0	0
„ Tasmanian, per case	5	0	8	6	Grapes, per lb.	1	6	4	0		
Asparagus, English, per bundle	1	0	3	0	Lemons, case	10	0	15	0		
					Peaches, per dozen	6	0	24	0		
					St. Michael Pines, each	2	0	6	0		
					Strawberries, per lb.	1	0	4	0		

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb. ..	1	0	to	0	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	Onions, bushel	3	6	4	0		
Carrots, bunch	0	3	0	4	Parsley, dozen bunches ..	2	0	3	0		
Cauliflowers, dozen	3	0	6	0	Parsnips, dozen	1	0	0	6		
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0	4	0		
Coleworts, dozen bunches	2	0	4	0	Salsify, bundle	1	0	1	6		
Cucumbers, dozen	1	6	3	6	Seakale, per basket	0	0	0	0		
Endive, dozen	1	3	1	6	Scorzoneria, bundle	1	6	0	0		
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0		
Leeks, bunch	0	2	0	0	Spinach, bushel	1	0	1	6		
Lettuce, dozen	0	9	1	6	Tomatoes, per lb.	0	6	1	0		
Mushrooms, punnet	0	2	1	0	Turnips, bunch	0	3	0	6		

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.	
Arum Lilies, 12 blooms ..	3	0	to	6	0	Pansies, various, dozen				
Azalea, dozen sprays ..	0	6	1	0	bunches	1	0	to	2	0
Asparagus Fern, per bunch	2	0	3	0	Pelargoniums, 12 bunches	6	0	9	0	
Bouvardias, bunch	0	6	1	0	Primula (double), doz. spys.	0	6	1	0	
Carnations, 12 blooms ..	2	0	6	0	Ranunculus, doz. bunches	1	6	2	0	
Eucharis, dozen	4	9	6	0	Roses (indoor), dozen ..	0	6	1	0	
Gardenias, dozen	3	0	4	0	„ Moss (French) per doz.	1	0	2	0	
Geranium, scarlet, doz.					„ Tea, white, dozen ..	1	6	2	6	
bunches	4	0	6	0	„ Yellow, dozen (Niels)	3	0	6	0	
Lilac (French) per bunch	3	6	4	6	„ Safrano (English),					
Lilium candidum, dozen					dozen	1	0	2	0	
blooms	1	0	2	0	„ Yellow, dozen blooms	1	6	2	0	
Lilium longiflorum, dozen	3	0	4	0	„ Red, dozen blooms ..	2	0	4	0	
Marguerites, 12 bunches ..	1	6	3	0	Smilax, per bunch	4	0	6	0	
Maidenhair Fern, dozen					Spiræa, dozen bunches ..	4	0	6	0	
bunches	6	0	8	0	Stephanotis, dozen sprays	3	0	4	0	
Orchids, dozen blooms ..	1	6	12	0	Tuberose, 12 blooms ..	0	4	0	6	

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Foliage plants, var., each	2	0	to	10	0
Aspidistra, dozen	18	0	36	0	Genistas, per dozen	8	0	10	0		
Aspidistra, specimen plant	5	0	10	6	Geraniums, Ivy, per dozen	4	0	8	0		
Azaleas, each	3	0	4	0	Heliotrope, per dozen ..	6	0	8	0		
Calceolaria, per doz. ..	6	0	9	0	Lobelia, per dozen	4	0	6	0		
Cinerarias, per doz. ..	8	0	10	0	Lycopodiums, dozen	3	0	4	0		
Coleus, per doz.	6	0	9	0	Marguerite Daisy, dozen ..	8	0	10	0		
Cyclamen, dozen	9	0	12	0	Myrtles, dozen	6	0	9	0		
Dracæna, various, dozen ..	12	0	30	0	Palms, in var., each ..	1	0	15	0		
Dracæna viridis, dozen ..	9	0	18	0	" (specimens)	21	0	63	0		
Erica, various, dozen ..	9	0	18	0	Pelargoniums, per dozen ..	9	0	15	0		
Euonymus, var., dozen ..	6	0	18	0	" scarlets, per						
Evergreens, in var., dozen	6	0	24	0	dozen	3	0	6	0		
Ferns, in variety, dozen ..	4	0	18	0	Rhodanthe, per dozen ..	4	0	6	0		
Ferns (small) per hundred	4	0	6	0	Roses, per dozen	8	0	24	0		
Ficus elastica, each ..	1	0	7	0	Spiræa, per dozen	6	0	12	0		



GRAZING.

JUNE, the month of rapid growth, when the herbage of our pastures is most abundant, succulent, and nutritious; the month when store cattle especially are "fed to profit," and grazing land—literally pasture—is turned to full account. This surely is the best time—the best month of the whole twelve which fill the cycle of each year—for a lesson in pasture management. Results of timely and thorough cultivation are before us—the benefit of an annual spring dressing of manure, of winter sheep folding, of all that goes to sustain fertility of soil, to promote a full and early growth of pasture herbage is now apparent, and we do well to endeavour to grasp its full significance.

What head of stock will it carry? is very naturally the test of practical men. Shall we ever be able to answer "a bullock to the acre" of pasture generally? Certainly we ought to do so of all pasture under correct systematic cultivation, because experience wide and long has shown how entirely possible it is to bring pasture up to such a standard of excellence. It may be thought that anything like precision in this matter is impossible; but we are bound to say that with the exception of severe drought, there is nothing in our climate to prevent the free growth of herbage in all good pasture.

Under the present conditions of pasture mismanagement and negligence the growth is very much the sport of weather, growth generally being so much dependent upon rainfall that stock-placing with precision is impossible. This fact had much weight with us in buying cattle recently for some pasture in hand, which we well knew has not had a full dressing of manure for many years—perhaps never since it was laid down to pasture. Looking squarely at the situation, we decided to buy only a limited number of such store cattle as in size, age, and condition might fairly be expected to go off the pasture in autumn—some sooner, some later, ripe for the butcher.

We also resolved that the area reserved for haymaking should be indefinite, depending entirely on the weather during May and the first fortnight in June, our aim being to finish the bullocks well, and to turn what grass could be spared into hay. A dressing of chemical manure, given as soon as possible after the pasture came in hand, should help the grazing, the hay crop, and also the aftermath.

Anything but an easy matter has it been to obtain the class of animal we required at a price on which some profit seemed possible in the end. The first herd we regarded as being rather a bargain, as we got them for £14 10s. apiece. For the second and larger number we gave £17 15s. apiece, the price asked being £18 10s. These were large-framed beasts in their third year in fairly fleshy condition, quite calculated to be off our hands early next autumn, especially as we intend giving them a moderate quantity of Waterloo round feeding cake at once. This is a compound cake to which we give preference for two reasons, the first being its rapid fattening quality, and the second that it cannot well be used wastefully owing to its being so easily digested. In contrast to this, it is well known that cattle can only assimilate a very moderate quantity of pure linseed cake.

It will be understood that the whole thing is to be regarded in the light of an emergency, apart from ordinary practice, just a farm in hand to be made the best of for awhile, and then handed over in good condition to as able a tenant as can be had for it. Should a similar thing happen next year we shall be prepared with a good store of Oats to be crushed and used for

the beasts instead of the cake. This is not a small matter, as now, at the best, our cake bill must prove a heavy item for the thirty-two large steers we have. It is true enough there were plenty of younger ones to be had, but they, too, were high in price, proportionately much higher than older ones, and then the condition of most of them was so deplorable.

It is undoubtedly the purchase of such starveling store cattle that does so much harm to already impoverished farmers. How frequently do we hear of purchased cattle being kept for a year and then sold at a positive loss. Buy cattle on which a profit is possible, or do not have any at all. It is not enough to say there is so much grass that we must have stock; not a single head of stock should be taken to a farm for a result so speculative that a loss on the transaction is practically a certainty.

WORK ON THE HOME FARM.

Rye Grass and mixed seeds are being mown for hay. Both are a heavy crop, and if the hay is well saved, as there is reason to expect it will be, it will afford some excellent horse fodder. There is plenty of green food now, such as Lucerne, Sainfoin, and Trifolium incarnatum, for all kinds of stock. Lambs are now folded on Sainfoin, as we regret to say winter Tares are rather scarce, but fond as we are of Tares, we desire no sounder or more nourishing green food for the lambs than Sainfoin. The advantage of most of these crops, both for green food and fodder, is so great that we regard most of them as indispensable even on a dairy farm. In bulk of crop, in high nutrition, and in general utility, they are alike excellent.

Green Maize is another fodder crop that is now being sown, either on very rich land or with a liberal dressing of chemical manure. Do not forget the absolute necessity for watching the Maize field during every hour of daylight till the plant is up and growing freely. When ready for use it is so really invaluable, coming in as it does in August, when pastures are bare and brown, and continuing useful till the first sharp frost. The fact that a crop of 30 tons an acre of it is quite possible shows that we should not mind a little extra expense in watching and cultivating it at the outset.

It is quite probable that the scarcity of chickens and ducklings now will lead to a much more general use of incubators and foster mothers next season. With this we advise greater attention to an adequate provision of snug winter quarters for the whole of the fowls to insure plenty of eggs both in winter and early spring. As old hens cease laying a bit later on destroy all at all unhealthy, and either send to the stock pot or sell all others. See that ducklings have a dry floor, with clean dry straw at night, or there may be serious losses from cramp.

Look over the pigeon stock, and make any changes or additions now in view of a plentiful supply for household requirements; also have two or three broods of guinea fowls, as they come in for the table at a time when little game can be had; they are then much in request.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1895. May and June.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.
Sunday .. 26	30.212	59.4	55.0	N.W.	55.4	75.1	48.1	117.0	46.2	—
Monday .. 27	30.397	57.8	54.3	N.	57.1	73.0	50.0	107.1	44.9	—
Tuesday .. 28	30.336	54.1	49.4	N.	57.6	68.7	45.1	109.7	41.0	—
Wednesday 29	30.163	55.2	51.9	N.	57.7	77.9	46.1	112.2	43.0	—
Thursday.. 30	29.910	71.9	62.3	N.	58.6	86.2	49.3	124.9	42.2	0.108
Friday .. 31	29.841	64.3	59.1	S.W.	60.9	73.4	60.3	120.0	56.0	—
Saturday .. 1	29.821	61.1	58.0	N.	60.9	68.4	55.1	98.0	47.7	0.031
	30.097	60.5	55.7		58.5	74.7	50.6	113.3	45.9	0.139

REMARKS.

26th.—Sunny throughout, but a little hazy at times.

27th.—White mist early, sunny from 9 A.M.

28th.—Bright sunshine throughout.

29th.—Misty early; bright sunny day.

30th.—Hot, rather close, and generally sunny, but cloudy about noon; distant lightning from 9 P.M. to 11 P.M.

31st.—Rain between 2 A.M. and 4 A.M., overcast early; frequent sunshine after 9.30 A.M., and brilliant afternoon; lunar halo in evening.

1st.—Overcast, gloomy, and showery till 10 A.M., occasional sunshine later; slight shower between 4 and 5 P.M.

The heat of Thursday the 30th was quite exceptional, and has only once been exceeded in May for half a century—viz., on May 19th, 1868, when the maximum was 87.6°, or 1.4° higher.—G. J. SYMONS

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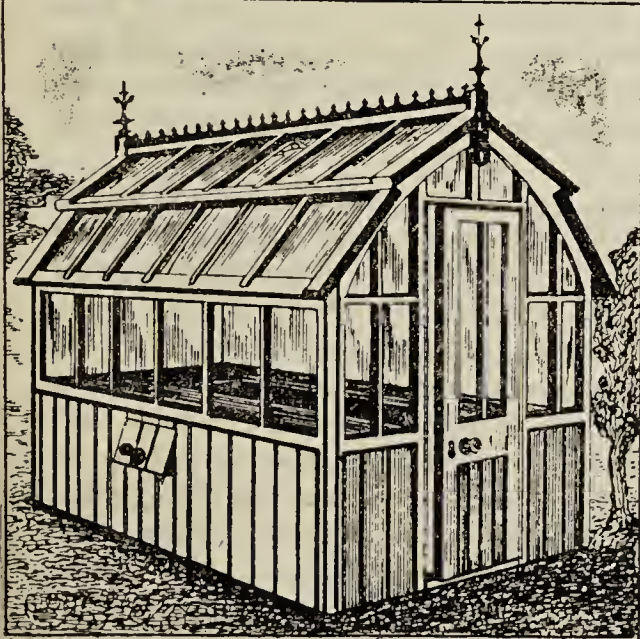
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" 12 ft., " " "	19 0 0— " " "	24 0 0
" 15 ft. " " "	" " "	29 0 0

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Painted three coats, and Glazed with 21oz. Glass.

1 Light Frame, 4 ft. by 6 ft.	£1 10 0
" 8 ft. by 6 ft.	2 10 0
Violet Frame, 4 ft. by 6 ft.	1 7 6

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Gardeners' Chronicle:—"Messrs. John Peed & Sons staged a collection remarkable for the perfect colour of many of the varieties included. . . . The collection was extremely praiseworthy."

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good flavour, high perfume.

Awarded First-class Certificates, Royal Horticultural Society, and
Royal Botanic Society, 1895. See *Gardeners' Chronicle*, March 2;
Journal of Horticulture, March 14; and *The Garden*, March 16.

Having purchased the whole of the stock of this grand new
early Strawberry from the raiser, we have pleasure in offering
it as follows:—

STRONG PLANTS, in Pots, £5 per 100, 15/- per doz.
RUNNERS . . . £3 " " 9/- " "

Ready for delivery early in July. Early Orders requested as
stock is limited. Further particulars upon application.

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Journal of Horticulture.

THURSDAY, JUNE 13, 1895.

THE ART OF KEEPING THE SOIL MOIST.

IT is not so much how to make dry soil wet
as to consider how best to counteract exces-
sive heat and drought that is the purpose in
view. The weather is dry now. If rain falls
before these notes are printed so much the
better; it will do more good than all the papers,
still the art of keeping the soil moist should
be learned by all cultivators.

In hot seasons heavy land suffers least from
drought, but unless the soil of such is very
thoroughly pulverised it is certain to crack
deeply and shrink into compact blocks, which
first prevent tender rootlets travelling, and
secondly become parched lumps. When well
pulverised, however, and when the subsoil is
damp, heat and drought only make the plants
thrive the faster. As clay soils which are dug
in autumn and early winter are in most districts
pretty solid by spring, unless thorough forking
is done, drought soon proves disastrous. Dug
in spring and broken up then drought tells but
lightly.

It is exactly the opposite with light sandy
or gravelly soils. It is working much mischief
to fork or dig these up lightly in spring or early
summer, for they are thus prevented from exer-
cising that capillary attraction which draws water
from below and maintains a steady moisture
when such soils have become somewhat firm by
lying long or by being artificially firmed. Those
who advise a liberal use of the fork will find it
quite right on heavy soils which naturally become
compact; but those who on gravelly or sandy
soil take such advice will find that "someone
has blundered," for it would be found that it
would be as hopeful to water the Sahara as to
moisten such soil.

While the mechanical condition of the soil
has much to do with its moistness or dryness,
it not unfrequently happens that plants appa-
rently suffer through want of water, when in
fact it is nitrogen that is wanting. A week ago
the writer met a farmer bemoaning the want
of rain. His hay crop was a failure, apparently
with drought. Over the fence was the finest
crop ever seen, and the owner of that other
field was hoping "we wadna hae rain, it wad

No. 2437.—VOL. XCII., OLD SERIES.

lay the hey." The first field was suffering from starvation, the second had been, if anything, overfed by liquid manure from the farmyard. Garden crops take up much nitrogen; usually the manure is not over-rich in that, and bad treatment makes it worse. Those who are suffering "from drought" might do worse than use a little sulphate of ammonia or nitrate of soda next time watering is done. In nine cases out of ten it will be found to almost do instead of water.

At present those who have summer beds to fill and winter vegetables in want of planting will not be in an easy frame of mind. When there is water in abundance laid on in pipes and applied with a hose matters are all right; but those who have to carry it in cans, even though it is plentiful, are to be pitied, for such work is comparable to that of Mrs. Partington's when she tried to keep back the tide with a mop. If anything we can say could induce owners to lay on plenty of water and hose for applying it we would say it earnestly, for they are mis-spending money if they are paying for carrying water, when it would a thousand times more effectually run itself.

When planting must be done in dry weather and watering appliances ineffectual it is more than half the battle to have strong plants with a mass of earth and manure adhering to their roots. Plants put in deeply, planted firm with dry soil, a little cup-shaped basin left round each to be filled with water, and after that soaks away, with soil, will not suffer for a long time, for the loose earth will be the means of preventing the water escaping into the air. On a large scale, such as the planting of Cabbages, it will be found a good plan to draw a deep furrow in which to insert the plants (from beds where they were pricked-out previously among half loam, half manure) without the loss of a fibre if possible, and then to fill each furrow with water. The evening is the best time to do this. In the morning dry soil should be made to cover the moist surface to prevent evaporation. No matter how fierce the heat, we have never found plants so treated suffer, and when in a week the roots have pushed it has been found of incalculable advantage to give each a little liquid manure.

Strawberry beds are most likely to suffer in hot weather. If so the surface should be deeply hoed, nitrate of soda sprinkled between the rows, and not a sprinkling but a flooding of water given. If the beds have been mulched with ordinary manure some time before, they are not so likely to suffer; if not, a good mulching should be given as speedily as possible. Long grass is as good as anything, short chaffy lawn grass the very worst. Tan is good, as it keeps the fruit clean, does not prevent water descending, but keeps it from ascending, and after one good washing is very clean.

In the vegetable quarters nothing will keep the soil moist equal to a good coating of partly decayed manure, and often manure so applied is much more effective than when dug-in in the usual manner. Machine grass between the rows of Cabbages is very effective, a very little thoroughly protecting the soil.

In beds and borders leaf soil is of incalculable advantage applied an inch thick over the surface. Soil moistened now and so protected will enable the plants to grow luxuriantly without further watering for a long time. After the surface is covered with vegetation and the roots have burrowed 18 inches drought is not likely to do more than to cause a denser inflorescence. Cocoa-nut fibre is even better still, though hardly so neat, but the luxuriance following its use speedily puts the fibre out of sight though not of usefulness.

Even common soil makes a good mulch. Wrong though it be to turn the body of the soil into a loose mass, it is of great benefit to have an inch or so of loose soil on the surface. For this reason the soil should be thoroughly hoed, and that repeatedly, especially after watering.

The watering-can in inexperienced hands is a source of much mischief. It looks so nice in the still evening to have the surface of the ground all dark with damp that the temptation to sprinkle

is too much for many. Either a soaking that will penetrate a foot at least or nothing should be given. Then the surface should be stirred as soon as dry enough, unless otherwise protected by mulching. Dribbling the surface is worse than drought. It robs the soil of heat and stops the growth of plants. It entices the roots to the surface only to be killed.

When water is applied it is of much service to have it exposed some time previously to the sun and air. Pond or river water is undoubtedly best, but many places are supplied by springs and deep wells. Such water is always cold, and when applied cold it gives roots a check. Soft water is known to be best, and exposure not only warms but softens it. When tanks cannot be provided for this purpose it would pay to pass the water through an ordinary heating boiler, under which burnt a good fire, especially when the water is to be applied to Vine or Peach borders. In the case of Melons, the cans if stood in the house or frame will enable the water to attain a suitable temperature in an hour or two.

When the soil is moist, or made so and kept so, plants use the food at their disposal rapidly, and in the sunshine turn the feeding to good purpose. In dull wet weather richness does mischief often. In hot weather it is turned to riches. In gloomy years plant food abundantly applied runs into a plenitude of shoots and leaves. When the sun is out it is turned to fruit for this year, and fruit buds for next. For this reason it is good to help flagging trees now, not only with water, but water with "a cinder in it." Stable drainage, sewage, guano water, nitrate of soda or ammonia salts applied to fruit trees and bushes now will well repay in due season.

In applying water to fruit trees it is well to remove an inch or so of soil and to form a basin rim with it; then fork another inch, and flood with liquid manure the trees needing assistance. Afterwards return the removed soil, it will act as a mulch; or, better, mulch thickly with manure.

Under the hot sun and drying winds fruit trees under glass evaporate with extreme rapidity. It is well to remember that the harder the pump-handle is plied the sooner the well goes dry; and it may be worth mention that soils which furnish food in abundance are not so much "drawn on" as others. Feed a man on rice or Potatoes and he must consume large quantities. Feed plants on water with hardly traces of the food they want, and they will try to make up for it by passing greater quantities through their system. This fact accounts for the chronic drought from which starved fields suffer.

In battling with heat and drought, then, we should aim at securing that texture of soil which best favours retention of water and maintains the greatest capillary power. To soak thoroughly and avoid dribbling; to have as strong plants to put out as possible, to injure none of their roots in the process, and to apply the water under the surface; to mulch whenever practicable, and with the best material at command, be it only loose earth; to seize such opportunities for administering food when possible, and to remember that often enough it is not so much water as nitrogen that is wanted, as well as, perhaps, other food; and last, not least, that under a bright sun plants work rapidly, maturing the present crop and storing matter, if properly fed, for the crops of the future.—A. H.

[Reprinted by request of a correspondent to whom a copy of the paper containing this excellent article could not be supplied.]



PHAIUS COOKSONIÆ.

SEVERAL Orchids were shown at the Drill Hall in competition for a special prize that was offered for the best seedling, and Phaius Cooksoniæ (see fig. 92) was adjudged the coveted honour

The sepals and petals are of a peculiar buff shade, with flushings of rose. The lip is superb, being purplish rose at the outer portion, and yellow mottled with brown in the throat. It is a hybrid obtained from *P. Humbloti* and *P. grandifolius*, and was staged by Mr. W. Murray, gardener to Norman Cookson, Esq., Wylam-on-Tyne.

ODONTOGLOSSUM HALLI XANTHOGLOSSUM.

This is a very fine and beautiful *Odontoglossum*, differing principally from *O. Halli* in having a bright yellow in place of a



FIG. 92.—PHAIUS COOKSONIÆ.

white lip. The sepals and petals are massive in the best forms, and their clear bright yellow colouring contrasts well with the chestnut and purple blotches and markings. *O. Halli* thrives under the coolest treatment, and is a very restless Orchid, frequently pushing new growth in the middle of the winter. It is also a free-rooting species, and thrives well in rather larger pots than *O. crispum*. The compost may be similar, and the drainage must be perfect, as, like all in this section, it must have adequate supplies of water at the roots.

During the present bright weather, and with the drying winds prevailing, it is very difficult to keep the atmosphere of the cool house as moist as is necessary, heavy shadings and constant dampings being the order of the day. Light sprinklings too are now of great service, especially in the afternoons. A little air left on top of the house is also advisable, the atmosphere feeling fresher, and not so stuffy in the mornings as when the ventilators are kept closed all night.—H. R. R.

ORCHIDS IN "MY GARDEN."

At all times of the year Orchids in greater or lesser numbers may be found in bloom in this garden, and, as will readily be understood, an abundance of bloom is now to be seen. Later on a novelty will be found in the collection of Orchids placed under the trees over a narrow stream that winds through the garden. Here they flower profusely and look singularly beautiful, and Orchid lovers would do well to make a journey to Hackbridge to see them. Mr. A. H. Smee and his gardener, Mr. G. W. Cummins, are ever ready to unloose their stores of information for the callers who are lovers of flowers. Of course at the time of my visit the plants had not yet been transferred to their summer quarters, but were growing well indoors.

Cattleyas, of which the collection is a very fine one, were making the most varied display about three weeks ago, a very large number being then in flower. Varieties of Mossiæ were conspicuous by their handsome flowers of various shades of colour, and also by the splendid health of the plants. *Lælias*, too, made a glorious display, and are not so far past their very best to prevent one seeing what some of the flowers have been, both as regards size and colour. *Cypripediums* are also grown somewhat extensively, but only a few were in bloom at the time of this visit, and of these the best was probably *Chamberlainianum*.

In the *Odontoglossum* house several superb spikes of bloom

were noticeable, especially in the *crispum* section. The flowers portrayed elegance of form with delicacy of colouration such as is so greatly admired in these beautiful Orchids. Here again, as with the Cattleyas, the best of health was plainly perceptible in the strong growth of the many plants. Lending brightness to this house were several plants of *Epidendrum vitellinum majus* carrying numbers of flowers of good size and very rich shade. *Masdevallias* in another house lent diversity and beauty, while *Aërides Fieldingi*, the Fox Brush Orchid, tended materially to the same end.—H.

MEN AND MANNERS.

SOME reasons—good ones obviously—should be given for approaching a subject which may not inaptly be termed delicate; else an apology is due, and that is no reason at all. True, we may have to go a little beyond the practical routine of horticulture, even into the philosophy of life, to find them. Various impressions are afforded by viewing a subject from different angles or from different altitudes, and though one may be sufficiently elevated in position to look down on the little things of life, they may not be looked over or despised. Some, at least, will acknowledge the helpfulness such have been to them in attaining that position, and maintaining it with a dignity which adorns their station in life.

Probably there are many gardeners (head gardeners) who have felt the necessity of impressing on their young men the need of observing those outward and visible forms of respect due to the family they serve, or, in fact, due to all, for good manners of the best type are not put on and off to serve occasion. Possibly there are some who have at times felt some anxiety on this account. One illustration may be given of a young foreman, who was deputed with a caution to show round an expected visitor of rank, in the absence of the "head," and who expended all his courtesy on the gentleman's gentleman (the valet), finding too late that the less-imposing personage coming in unobtrusively afterwards was the rightful recipient.

Observations of a quiet life solely devoted to that art beloved of readers of these pages leads to the inference that a little moral teaching of this kind is not out of place, although it does little here beyond showing its importance to those who have yet the world before them. True courtesy can hardly in fact be taught, springing, as it appears to do, from a nobler source; but there are

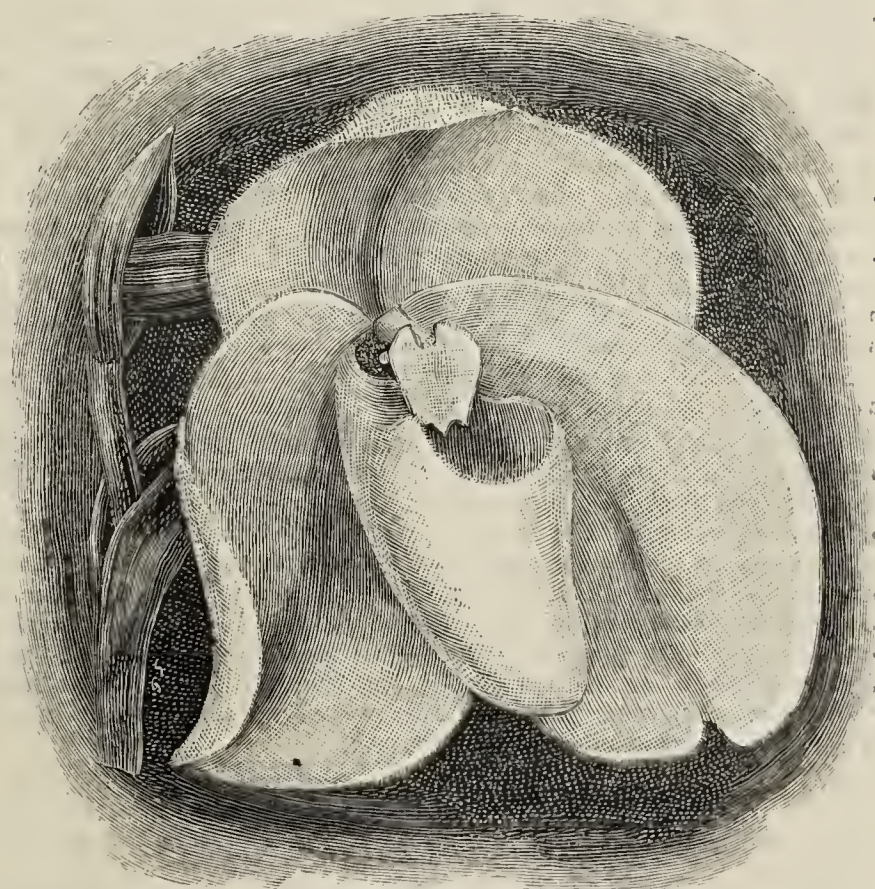


FIG. 93.—CYPRIPEDIUM BELLATULUM ALBUM. (See page 525.)

so many checks and hindrances to its proper development that it may be very effectually disguised. It needs cultivation by constant exercise, or it is choked by neglect, and manners good or bad are essentially contagious. Consciously or unconsciously, the cue which has been given to us by actors now passed from the drama of life is appropriated by those passing their novitiate in our company. This may be borne in mind by all. That the more plastic

material of younger minds is very susceptible of impressions must be admitted. A little reflection will show that we elders have brought forward into our lives some of the manners of our teachers, to be again carried on by others into theirs, and this imitation, if of the right kind, is the sincerest form of flattery. Further reflection will throw out the stronger light of responsibility it carries with it.

From personal experience instances might be quoted of places where an unwritten (not unexpressed) law prevailed that the young men should be of good manners and good appearance. The latter part of the stipulation is not here to the point, only so far as may be allowed that courteous behaviour is an important accessory to appearance whatever that appearance may be. Probably this experience can be endorsed by others, who have found in some shortcomings of their subordinates the cause of a reproof from headquarters, with the unpleasant duty of passing it on to those whom it directly concerned. One worthy old gardener did, who framed an apology for a lad by saying, "Well, my lady, his manners are no' verra guid, but he has plenty o' them." In this case excess of zeal had prevented that nice discrimination between servility and courtesy, resulting in manners which were offensive. But quantity will not atone for quality; hence I would point the moral to a rising generation and say, Cultivate good manners as assiduously as you would cultivate your plants for judicial inspection at a flower show—nay, more so, for gardeners of all men are always under judgment by experts in judging of men and manners.

Passing on to another phase of the subject hardly secondary in importance we may note how pupils not only grasp the letter of the teaching, but catch the spirit of the teacher. We see how energy, perseverance, and kindred virtues, which may be summed up under the head of smartness, are by some form of animal magnetism conveyed and made to permeate the staff. Wellington remarked, "Had Buonaparte been with the army in Spain the moral force of his name would have been equal to 40,000 men." It may not be easy to apply this moral of war to the art of peace; yet it is not difficult to recognise the attributes which insure victory in our field of work.

The power of will is a mighty lever, and there are but few obstacles barring the road to success that it is not able to remove. We need it, for the go-easy manner of gardening is now ancient history. We think, act, work, and live in an atmosphere heavily charged with the electric conditions of a new manner of living. All this means wear and tear to the human engine, and never was there more need of that valuable lubricant a cheerful manner to keep all running smoothly. Without it this rapid rolling of the wheels of life brings the danger of friction. Fortunately there is a refining influence in gardening which is a potent factor in character formation, but unfortunately there are elements in it playing at cross purposes, producing with some conditions of men examples which may be termed touchy. This touchiness is productive of much discomfort to all concerned, especially to the touchy one. Good and capable man he is goes without saying, for it is from the vantage ground of skill he overlooks a graciousness of manner. No advocacy of weakness is to be deduced from this, for firmness and courtesy may go hand in hand.

Truly there are crops of uncomfortable things perpetually springing up, only waiting for a little nursing to develop into noxious growth. A rough manner oft covers a kindly heart; in some cases so completely that it is a matter of surprise to find such exists, and it seems a matter for regret that an ever kindly heart should be thus cloaked, for all its beams are wanted to cheer on our young travellers in the arduous path. In all the varying conditions of life (our life), and to all men diversely gifted, there are times when the wisdom of the following quotation is at least worthy of trial, viz., "If thou art a master be sometimes blind, if a servant sometimes deaf."—OBSERVER.

LILIES IN ABUNDANCE.

IN the heart of most people lurks a love of flowers. Of course, in some the flame of love burns ardently, in others, well, there is just a living spark, and that is all. If it were left to "the masses," and possibly to the "classes," too, to decide on the favourite English flowers, the votes would go for "the Rose and the Lily and the Daffydownilly." During the summer season there are few who fail to become possessors of at least one bunch of Roses, so many flowers come under that head, and so few, alas! come up to the perfect type. Far be it from me to deprecate humble efforts, but even the smallest and weakest grower might do a little to improve the culture of this queen of flowers. A little pruning at least, a little attention to situation, and a little manure do work

such wonders. Even in large gardens, presided over by "Mr. Prunewell," somehow or other he or his satellites pass by on the other side, and leave the standards with heads like pollard Willows, and the dwarfs with too crowded a growth of small shoots, and occasionally something suspiciously like Manetti. But this is not Lilies. In the winter months town folk see in the best florists' windows pots of magnificent forced Lilies, which go to adorn the mansions of the great; later appear buttonholes, whose modest price brings them within reach of those who can afford a few pence for the gratification of eye and nose. Between Easter and Whitsuntide, but like them a moveable feast, appear bunched up masses of partially opened flowers surrounded with a fringe of green leaves, about as unnatural in appearance as can possibly be made, and the flowers bearing as much resemblance to their forced sisters as the Crab of the hedgerow to a good ripe Blenheim Orange. Now this is about what thousands of our countrymen ever see of Lilies, and even under these depressing conditions their loyalty to the flower continues strong.

Will you see and hear of better things, such things as I saw only the other day? You shall see woodland Lilies to perfection. Our ticket, by the courtesy of a noble lord, admits four between the hours of twelve and seven. The walk is almost too wearying, and there is stabling at the head-keeper's. The entrance lodge, with its fantastic gables and black beams, takes you in memory to the western counties. Two magnificent Copper Beeches flank the gate; a broad drive, beautifully kept, with wide grassy borders, and beyond them for some distance runs a line of Yews that have braved many a severe storm of heavy snow and sharp frost. Here and there are Scotch Firs, Beeches, and in the opener parts a graceful Deodara, but the main part of the wood is Oak. There are at intervals broad open spaces where the young trees are planted, in various stages of growth, of course. In the youngest plantations abound flowers of every hue and shape, for this bit of country is rich in its flora. In the heart of the wood we will put up. There we find the head-keeper's lodge and his pheasantry; they mean to rear 3000 young birds this year. What we want to see and do next is best done on foot. The rides are broad, undulating and charming. You do not go far before the eye is attracted by a close growth that comes up almost to your feet. The leaf is suspiciously like a Lily; but yet, can that be! Turn which way you will, walk till your legs are weary and your back will bend no more, or rather perhaps will no more straighten, still the same sight; acres on acres, up to a thousand, and still the dense green foliage, and among it the sweet bell-like flower.

The fantastic twigs of the Oak with its young leaves make a network of glory against the blue sky. Here and there the tall Columbine, purple, blue, or white, gently tosses its plumed head. A stately cock pheasant struts past unmoved; the air is full of the song of birds, the hum of bees, and the scent of flowers. You may sit down and gather a large bunch of Lilies just where you are, but you cannot do that; you move on and on, human nature is so strong, and you think there may be even better beyond. Now is the time to remember absent friends, and bunch after bunch is carefully laid aside in the basket your provident guide supplied—a basket of whose dimensions you were inclined to jeer on leaving home. You ask if this earthly paradise is public? Practically so, as tickets are given to every respectable applicant, and the pleasure given cannot be counted by the tickets issued. You may and possibly have seen glorious gardens which are the pride and glory of the stately homes of England; but did you ever see anything that gave you such pure pleasure as this garden of God's own planting, where Nature has her way untrammelled and Nature's children play around her knee?

I write a plain unvarnished tale, but it is simply a true picture of what I have seen so often that I would fain have others see as it were through my eyes, though language is inadequate, and the pen of the readiest quails before describing the haunt of the Lily in the great woods of N. Lincolnshire during a visit at Whitsuntide.—H. G. F.

HARDY FLOWER NOTES.

So far as weather went the month of May well deserved the appellation of the "merry month." Cloudless skies and brilliant sunshine prevailed almost every day, and were we not inveterate grumblers those of us who are growers of hardy flowers might join cordially in singing the praises of the past month. Yet we cannot but think of the flowers which seem to enjoy alternations of cloudy and sunny days, and which have this year displayed their blossoms for a shorter period than usual, unable to stand longer the power of that orb which, after all, seems to call them into being. Some of these opened to delight us with their frail and fleeting yet beautiful blooms, and soon shrivelled under the heat

and drought which accompanied their flowering days. Still, with all, we have had a royal time among the flowers, and though tempted at times to look ruefully at the work of watering some of our alpine plants, we can look back with pleasure on the depth and fulness of the enjoyment of the garden's treasures.

As the month drew to an end and June was ushered in, fair was the scene still presented to view. Crowning a rockery, protected from the north and east by a thick hedge, the Golden Drop (*Onosma taurica*) was very attractive with its prettily shaped tubular flowers exhaling their perfume of almonds. At the base one of the best of the Alpine Bugles, *Ajuga genevensis* Brockbanki, showed its spikes of deep blue flowers. Near by the first of the Eastern Poppies, a seedling of *P. orientale*, had opened its great scarlet blooms. Clumps of *Alyssum gemonense* strove to supply the place once filled by its earlier sister *A. saxatile*, with its "gold-dust" flowers. The "Columbine commendable," as the old poet Skelton called it, was very pretty in its varied colours, and still more varied shades. The pleasing little *Geranium lancastriense* had opened its pretty flowers; *Dodecatheons* were still in bloom, with their quaint-looking and beautiful flowers; and *Irises*, *Saxifrages*, *Pyrethrums*, *Calochorti*, *Hutchinsia*, *Scillas*, *Cornflowers*, and many others combined their beauty to wed us to the garden in which they dwell. There is thus no lack of texts from which to discourse, and as we pass along the walks we may select a few flowers for remark.

The "Golden State" of California has yielded us many very beautiful flowers of both perennial and annual habits. Some of these, unfortunately, fail to accommodate themselves to our climate, and too often we have to mourn their loss. In the genus *Brodiaea*, named in honour of a fellow Scotsman (J. J. Brodie) who was devoted to other forms of vegetation, we have some pretty bulbs, some of which are hardy in most localities in this kingdom. Among these is *B. Howelli*, the typical variety of which has purplish blue flowers, produced in umbels on long slender stems. It was introduced from California in 1880, but is not yet much seen in gardens, even where bulbous plants are largely grown. It is, however, of a new variety of this species that I wish to speak, this being known as *B. Howelli lilacina*. It came to me by way of Holland, its history being that it was received by a bulb merchant there among collected bulbs of the type, and on flowering was named *lilacina* as a distinctive title. Very pretty is it, and well worthy of being grown in good collections. Its colour here is of the palest lilac, approaching white. It might possibly be deeper in colour if grown in full sun, but it has been planted in a place where it is partly shaded by the branches of a Lilac tree, so that it is screened from the rays of the sun. It is about 18 inches high, and has withstood the past winter without any covering in a border of sandy soil.

As I write Poppies are very fine, and before long they will be still more largely represented. Growers of hardy flowers are naturally desirous of increasing the variety of form and colour at present at command. There are several of the colour which seems to be pretty generally accepted as "salmon" colour, such as *Papavers pilosum* and *rupifragum*. This year I have flowered for the first time the variety of *rupifragum* known as *atlanticum*, and should it retain its present habit am inclined to think it is an acquisition of considerable worth. Some time ago I read the description of this Poppy in the "Journal of the Linnean Society, Botany xvi.," page 313, but could not succeed in hearing where it could be obtained until Mr. J. N. Gerard of New Jersey very kindly sent me some seeds from which my plants were raised. It is a neater and dwarfer plant than *P. rupifragum*, and with better formed flowers of much the same shade. It was found on the sub-alpine regions of the Greater Atlas, in Morocco. What would be very desirable would be some white and crimson forms of these Poppies.

These notes would fail to do justice to one of the best of the hardy flowers in bloom at this season did they not make mention of a very beautiful *Anemone* which has been much admired this year in the border. This is *A. narcissiflora*, introduced more than 120 years ago, but still all too rare even in good gardens. It is strange that so many charming plants, which were introduced more than a hundred years ago, are yet seldom seen. *A. narcissiflora* grows about a foot high, and has numerous pretty white flowers of upright habit. These individual flowers remind one somewhat of those of some of the *Narcissi*, so that its specific name seems appropriate enough. It is a useful plant for the border or rockery, and will be found rather variable, which adds to the interest of several plants. Its beauty will commend it, and it is besides one of the flowers which, from having been grown in our gardens so long, help to link us, in thought at least, to the many who in days past loved their flowers, and whom we can think of as we gaze on plants they cared for ere they passed from this mortal life.—S. ARNOTT.

IN THE MIDLANDS.

THOUGH *Violas* and *Pansies* formed the object of the pilgrimage to the Midlands last week (page 493), a glance may perhaps be taken at one or two "side issues," though there are certain people in the world so constituted as to more than smile at what they might possibly regard as the derogatory comparison. Fancy *Pansies* and *Violas* standing before gold and diamonds! before a forest of *Orchids*! and before a great speech by Mr. Chamberlain! Is it not too absurd? There, something has slipped out and may now as well fall in with the rest in the record of experiences.

MR. CHAMBERLAIN.

Let no one of tender susceptibilities be alarmed of any intention to raise "cheers and counter cheers" by the mention of a name. For this particular occasion the right hon. gentleman shall not be regarded in the least as a politician, but as an interesting personage and an ardent amateur horticulturist. "But that speech; did you really hear it?" That is the way of the world—give a hint and it wants to know the rest; and it is a happy circumstance that we can enjoy an intellectual exposition as such, whether adherence be given or not to the sentiments uttered. Well, then the writer did hear "that speech," and laughed with the rest at the smart points of the great—orchidist.

But it was all accidental. The grand Town Hall was lighted, curiosity being thereby evoked, and the facts elicited. "London Press; pass me in quick, please," and I was in front of the platform forthwith, face to face with the lover of flowers. It was a sight not to have missed—a quiet, cool, pale-faced man, holding a packed audience of thousands in the hollow of his hand, drawing the cheers and laughter alternately as easily—well, as drawing corks; then, while the multitude settled down, quietly arranging mentally the terms of another rhetorical shot. The coolness, the deliberateness, the consummate ease, the seeming nonchalance is indescribable. There is no rapid rush of eloquence, like wave dashing on wave interminably, but every sentence, and often every word, stands alone—clear, distinct, and telling. It must be a treat to the reporters. Mr. Chamberlain could have kept his cigar going all the time, as he did during his after dinner speech in celebration of a great show in the Aston Park Grounds some years ago, and that is more than some of our lecturers on horticulture could do—if they had the cigar.

JEWELS AND FLOWERS.

The Town Hall gathering was the night before the Pansy show. On the day after it inquiries were made for Tenby Street. "Snow Hill by cable tram to Hall Street, then ask again," was the line of guidance. Birmingham is ahead of London with trams. In London and its suburbs horses are, with few exceptions, relied on. In Birmingham they are superseded by steam trams, electric trams, and cable trams; the City, in fact, seems to be up to date. It has noble buildings with handsome streets, and all so clean, the chief wood-paved thoroughfares being washed every night, and in the morning all seems fresh and sweet. Tenby Street is not in a palatial part of the City, but in the "jewellery quarter," in which everything, from the cheapest to the most costly articles, belonging to the order of pomps and vanities are provided for the civilised and uncivilised world. It is hardly necessary to say that the street named is the business centre of the Messrs. Sydenham—a name as well known in the floral as the jewellery world, and brought into prominence in both by genuine business enterprise.

THE DIAMOND EYE.

There are three Sydenham Brothers, and all appear to be "gone" on flowers; but one of them, the elder (Mr. George Sydenham), has to restrain his tastes in that direction through fear. Of what? Few would guess, at least correctly, if they tried for a year. It is lest he should lose his "diamond eye." It must not be thought he is like the fabled toad, and carries a jewel in his head, or wears it as an eye substitute or anything of that sort. The jewels are much less prominent as a rule. This elder brother of the trio says, if he were to watch bulbs and seeds "like Robert," and peer into rayless *Pansies*, searching for hair-like streaks, "like William," his eye would get out of joint for diamonds. He did not use the exact words, but meant them. That was clear enough, as he took out a handful of paper packets to show as might be expected samples of flower seeds, but really hundreds of glittering diamonds—some the size of Larkspur seed, some larger, some smaller. To the ordinary eye there seemed no difference between them, except in size, yet they differ in value widely; but the true value of each can only be determined by the finely trained and highly educated "diamond eye." These gems are set in pins, brooches, rings, sprays, chains, bracelets, necklets, coronets, and stored in trays in strong rooms, preparatory to their dispatch to retail tradesmen all over the kingdom. It would almost seem as if the diamond Sydenham looked after their production, the bulb and Pansy Sydenhams their distribution, keeping at the same time an "eye" on other things, and a pretty sharp one too. These other things are no doubt regarded as jewels in their way, for the bulbs and seeds yield floral gems, and *Pansies* and *Violas* glitter in the sunlight.

It must not be imagined we have been gossiping about a jeweller's shop having windows curtained with chains and bedecked with all kinds of "vanities" on velvet stands. No, the Tenby Street building is more like a bank, with mahogany counters and rows of clerks and

packers, with stacks of small boxes handy, for it is a huge postal business, and the cost of registered packages must be a very large item indeed. A square tower, thick and strong, proof against fire and burglars, is separately built within, and through the building from foundation to roof. Out of this the strong rooms open on every floor and into every room; but after all such provision for security the rooms are never left, while the chief caretaker is expected to be a man who knows no fear and can shoot. This "touch" of Birmingham life may not be wholly uninteresting; it is at least a change from the garden life with which the thousands who read these lines are familiar, and it can only be wished that it were a pleasurable or profitable life to them all, though it may not be beset with diamonds. Yet all the same, gardening adds a charm to life, and makes it better worth living.

THE GENESIS AND GROWTH OF A TRADE.

The Sydenhams, amidst all their costly mineral gems, could not live happily without their gardens; and it was in making purchases for them which led their friends and neighbours to desire to "join in," and in this way avail themselves of the judgment of the then amateur experts. The circle widened yearly in increasing proportion till the commissions became formidable. Thus were the caterers forced into business—not very reluctantly, perhaps, but forced all the same; and when a Birmingham man reckons to do "business" he does not do it in a sleepy way. With untiring perseverance one brother set himself to master one branch, another a different one, thus adding to capital, knowledge, the third all the time keeping his diamond eye. No one could see the great warehouse provision and adaptability to the purpose of bulbs and seeds, with the completeness of all working details, without being surprised that so much could have been accomplished in such comparatively little time. A wonderful trade has, so to say, "sprung up," and surprised even its originators. Nor does it follow at all that they have "taken the trade" from others. They have made hundreds and thousands of persons ardent flower lovers and growers who but for them would never have become fascinated with the pursuit. Their trade organisation enabled them to reach a constituency practically otherwise unreachable. The few bulbs set a rolling and seeds scattered created a demand for more. The love of flowers and gardens extending, brisk legitimate business methods were adopted to foster still farther extension, trade expanding as a consequence, and that may be said to be the long and the short of it. So now we pass on.

MR. ROBERT SYDENHAM'S GARDEN.

In order to reach this, and it was worth reaching, we had to drive across the city—from the "jewellery quarter," where money is made and diamonds sorted, to the suburbs, where the results are enjoyed. The Bristol Road is a long, straight, avenue-like thoroughfare, as far as the eye can reach, with attractive villas and mansions all the way, having treey frontages, and gardens in the rear. A pleasant part to live in surely, with nothing suggestive of the proximity of a smoky town. The mere size of a garden is no measure of its capacity for affording interest and pleasure to its owner and friends. Mr. Sydenham's domain is perhaps not more than an acre all told, and a third of this tennis lawn. He employs three men and a boy to keep it in order. There are no fruit houses, nor any vegetables grown beyond salads. "Then it ought to be in order," many a too hardly worked gardener will be ready to exclaim. It is indeed in such order as is seldom seen—a very paradise of a suburban garden.

There is the little undulating lawn with its rockery and alpine plants, with curving side borders of shrubs and hardy flowers, with its front line of *Violas* backed by bright bedding plants, then a hedge and another section, a good part devoted to a trial of the choicest Sweet Peas planted from pots, each group of four or five plants to be grown as a "specimen." Square blue Staffordshire tiles are laid in exact line, and at exact distances for stepping on and passing among the Peas to avoid trampling on the soil, and bringing some of it on the smooth, clean, gravelled paths. Another "quarter" is mainly devoted to narrow span-roofed houses now occupied with the best varieties of florists' *Carnations* in pots. The collection is extensive, and the plants, of which three or four are grown in a 10-inch pot, are in admirable condition. The side and roof lights are removed, but placed in position later, the houses being thus admirably adapted for *Cyclamens* and other plants, as adequate provision is made for heating. A span-roofed greenhouse and stove contain a well chosen assortment of plants in the best cultural condition, including all Mr. Davis's (of Yeovil) best double *Begonias*, the blooms of which attract so much attention at provincial exhibitions.

The side borders of the little enclosure are made interestingly gay by plants raised from the best procurable stocks of tender annuals, while those on two sides of the tennis lawn are occupied with shrubs and hardy flowers arranged by the late Mr. William Dean, the opposite side being devoted mainly to an extensive collection of *Dahlias* with a marginal line of Mr. Herbert's new *Margaret Carnations*—not *Pinks* in this case, but a strain between them and true *Carnations*, the flowers having smooth, not serrated petals. On one side of his charming enclosure Mr. Sydenham has a pretty summer-house in which the Scottish contingent of Pansy growers were having tea, or something else, and exclaiming in much more than Chamberlainian excitement on the perfection of all they saw around them, not forgetting the leafy cave of the "Forty Thieves" behind the greenhouse opposite. This is the commissariat department, where various kinds of soils, manures, and other requisites are stored in a row of barrels; not second-handed, dingy-looking affairs, but properly painted and varnished, in order that they may "adorn" the position they occupy in a garden without a weed, borders without a

footmark, lawns without a daisy, paths and edges without a fault, and in which nothing can be seen that "wants doing," yet all the men seeming busy, as if they had enough to do, as no doubt they have, to keep everything in such superb condition. There is no wonder that visitors to such a garden should be tempted to add beauty to their homes in a similar way, as many have done; and it is certain that the "Sydenhams" have, in one way and another, enlisted an army of recruits in the service of floriculture.

MR. CHAMBERLAIN'S GARDEN.

Highbury is not far from King's Heath Station, but on the sultry day a drive of a couple of miles or so from the small garden to the great one was preferable to the railway. There is no intention to write a description of this garden and its contents. An Orchid specialist with a long day before him would be needed for that, instead of an evening call of an hour's duration, when not half the houses were entered; it was not an inspection, but a mere "march past." At the particular hour in question Mr. Burberry, the skilled Orchid grower, was absent, but the still new, very courteous, and admittedly able head gardener, Mr. Deacon, gave every attention to his visitor. So far as could be gathered there is a time for work mainly, and a time for enjoyment, more particularly, in the Highbury gardens. The London parliamentary session is the working or preparing time, and if Mr. Chamberlain return for a week, such as on the occasion of a Whitsuntide holiday, this is not supposed to interfere with the ordinary routine, but when the session is over and the family established at home, then the gardens are kept in the best dress and most attractive condition.

As they would say on the Continent, Mr. Chamberlain is a "great amateur." He is no sportsman, neither indulging in hunting, shooting, racing, golfing, nor popular exercises of any such nature. The garden is his delight—his haven of rest after the turmoil of political combat. It can be safely said it has not made him effeminate, for if ever there was a fighting general we find him in the master of Highbury. A good master, too, to his men, all of whom are well recompensed for their labour, those who are responsible being afforded everything that is necessary for the satisfactory discharge of their duties. When ten tons of coke were consumed weekly during the severe weather early in the year there was not a murmur; it was simply necessary provision under the circumstances, and as such passed without comment. It is pleasant for gardeners to work for proprietors who are not only appreciative but practical.

Mr. Chamberlain may be very correctly described as a practical amateur. Some persons possess gardens, but know little about what is in them, and next to nothing of what is required in culture and maintenance. This is not so at Highbury. It must add greatly to the enjoyment of a garden by its owner to know all the trees and plants that are grown in it, as well as their needs, and greatly to the peace of mind of a gardener too, but he must be a good one or would soon be found out. Mr. Deacon has not been kindly treated by the weather, as a beginning, for he was closely followed by the ten weeks' frost, and then had to clear away the wreckage from the shrubberies—or winter work thrown into spring and early summer; but he will soon bring up arrears and have things to his liking; moreover, when extra work really presses there is no difficulty about extra men, so that a gardener has a fair chance to succeed at Highbury.

The pleasure grounds are extensive, and much planting has been done from time to time. Hardy border flowers are grown in great colonies, not dotted here and there in the orthodox mixture, but rather fifty or a hundred or more in a group. Of *Irises* there seem to be thousands; indeed, whatever is most liked is grown in profusion. The grounds are beautifully undulated, and the banks of *Rhododendrons* would have been grand but for the burning sun and prolonged drought. However, water is laid on, and Mr. Chamberlain was giving instructions for its use where most wanted, for, as he observed, everything cannot be watered over such an extent of ground. He knows all the trees and shrubs, and those which succeed best in the district, and was noting with satisfaction how well *Retinosporas* had passed the wintry ordeal.

The Highbury gardens are, however, the most famed for the glass department, or the portion devoted to plants. Adjoining the mansion is a large and lofty conservatory containing magnificent *Palms*. At one end a large bed of *Lilium Harrisii* was a prominent feature, and at the other a similar bed of *Hedychium Gardnerianum* not long since filled the house with fragrance. Then comes the fernery with its rugged rocks and wealth of "cool greenery." Here a plant of *Anthurium Chamberlainianum* is bound to arrest attention by its gigantic proportions, its leaves being large enough to shelter a man from a tropical shower if circumstances favoured. A spathe had been cut and sent to Sir Trevor Lawrence for the use of the pollen. Next comes the corridor, some 9 or 10 feet wide, the wall on the left covered with plants appropriate for the purpose and extending over the roof; on the right a series of span-roofed houses, perhaps twenty, parallel with each other; at the end of the corridor Rose houses. On passing the ends of the span-roofs the majority were seen to be filled to repletion with *Orchids*, *Cattleyas* making a gorgeous display. Surely thousands of blooms could have been cut of quite the first quality. A cursory examination showed how healthy and clean the plants were under the careful treatment of Mr. Burberry and the diligence of his assistants. Perhaps the most famous plant of the season was *Dendrobium thyrsiflorum*, and it must have been grand when its upwards of seventy handsome racemes of flowers were in beauty.

On the left of the corridor, which runs east and west, is the *Odontoglossum* house; there is also a north house for *Masdevallias*,

and still Orchids are packed in older lean-to houses, and there are further Orchids in frames. Their number is bewildering, their condition excellent, and value great. Some of the span-roof houses alluded to are filled with stove and greenhouse plants; one was a floriferous mass of decorative Pelargoniums, and another filled with Malmaison Carnations; soon there will be a blaze of Begonias, then in due time sheets of Primulas, Cyclamens, and others in due season, and all in imposing numbers. When the electric light is turned on through the corridor and houses the promenade, which from the mansion to the Rose houses can be little short of 200 yards, must be very delightful, not to say entrancing; still there are thousands of persons who would not travel half so far to see it as they would to hear one of its talented owner's fascinating speeches.

There are other houses—lean-to's of an ancient date—which no doubt Mr. Chamberlain "found there," with excellent crops of Peaches in some and Vines in evident process of rejuvenation in others; also numerous frames for raising plants, and all full. Every inch of space seems occupied everywhere, and there is something to tell us at every turn that we are in a cherished garden. May it afford pleasure and satisfaction to the right honourable gentleman as a patron of horticulture for many years to come, and afford him healthful repose in such intervals of leisure as he may find from the responsible public duties which are incident to his commanding position. He is cordially thanked for the facilities afforded for a glance over his garden, and for the urbanity extended to a—CASUAL CALLER.



EVENTS OF THE WEEK.—The great horticultural event of the week is the Floral Fête at York that opens on Wednesday, June 19th. This promises to be as great a success as ever. On Thursday, 20th inst., the Colchester Society will hold its annual show. These are apparently the only two shows of particular interest, but with the end of the month the Roses will be in full force, and growers and exhibitors will be at their busiest.

WEATHER IN LONDON.—Glorious weather has prevailed in London during the past week, but the continued absence of rain or even atmospheric moisture is commencing to be felt seriously. On Tuesday evening a shower fell, but was not enough to penetrate the ground. In at least one of the London parks the grass is as brown, or more so, than it was in 1893 at about the same date. Twenty-four hours' good, steady rain would materially benefit both London and country gardeners and farmers.

WEATHER IN THE NORTH.—For the last two weeks preceding the 11th a great drought has prevailed. Many of the days have been intensely warm, and a high parching wind has continued since the close of last week. Rain is very much wanted.—B. D., *S. Perthshire*.

OROBUS VERNUS.—Plants with pea-shaped flowers are rare at this season, and this fact alone, says an American contemporary, would give a value to this Orobus. It is an excellent hardy perennial, and would deserve attention at any season. The plant grows about a foot high, and nearly as soon as the growths are out of the ground the flowers begin to appear. At first they are a mixture of green, red, purple, and blue, but when they get a little older they turn almost blue. This is a good border plant when it has rich soil.

INSECTS ON FRUIT TREES—THE POULTRY REMEDY.—After years of careful experiments with insecticides for the destruction of the larvæ of the winter moth and Apple-blossom weevil, I have yet to see a really effective remedy for the two pests named. The difficulty about all these insecticides is bringing them into direct contact with the enemy, as the caterpillar quickly surrounds itself with a cover of foliage, and the Apple-blossom weevil is practically safe in the unopened flower buds. There can be no question as to the value of the arsenical compounds mentioned by "R. M." (page 498), as immense numbers of caterpillars can be killed thereby; but our experience at Glewston Court is that poultry are the best insect destroyers. I think no one can justly estimate the enormous quantity they devour. Up to a recent date we have had all our dwarf fruit trees shaken daily, and the fowls have followed the shaker, eagerly feeding on the caterpillars and Psylla weevils that fell down. When the great service rendered by fowls to the fruit grower becomes more recognised, I feel sure that they will be looked on as a necessary part of the business.—S. T. WRIGHT.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The usual monthly meeting of the Committee of this Society was held at the Caledonian Hotel on Monday evening last. Mr. Nathan Cole presided. Four new members were elected. It has been decided by the Committee that the increase of sick pay from 10s. 6d. to 12s., and from 16s. to 18s. per week in the two classes respectively, shall commence from the half year (July 8th). The Treasurer reported that he had invested £200 in West Bromwich Three Per Cent. Stock.

SAXIFRAGA PELTATA.—At the edge of a small pond this largest of the Saxifrages is throwing up its vigorous flower stems. These stems, which rise from a stout, fleshy, creeping root-stock, are from 18 inches to 2 feet high and three-fourths of an inch thick at the base. The flowers are in large clusters and rose-coloured. At this time, when the plant is in bloom, the leaves are about 10 inches high and 6 inches across. Later on the umbrella-shaped leaves increase in every way until they are about a yard high and as much across, and are very bold and handsome. It is a moisture-loving plant, and requires to be planted near a pond or running stream; in such a place it very soon increases.—R. C.

A CENTURY OF PROGRESS IN FLORICULTURE.—This subject was discussed by Professor Henslow in his lecture to the Fellows of the Royal Botanic Society and visitors at the Gardens, Regent's Park, on the 31st. ult. The lecturer showed specimens of the original wild plants from which some of our most admirable garden flowers have arisen, and illustrated with numerous diagrams the various stages in the way of cultivation and hybridisation they have passed before reaching the perfection of to-day. While the changes from the, in many cases, insignificant wild flower had been little short of marvellous, there was a limit beyond which they could not go; and he was afraid that, with some few of our florists' flowers, that limit had already been reached.

SPRING LETTUCE.—At page 493 mention is made of the scarcity of spring Lettuce. This is not my experience, as from a sowing made on a south border on the 14th of August last of Hicks' Hardy White Cos, Brown Cos, and All the Year Round Cabbage Lettuce, the two former wintered well, but quite half the crop of the latter succumbed. Hicks' Hardy White Cos has been in perfection during the past three weeks. The heads of this variety averaged over 2 lbs. each and being perfectly blanched, fetched top price in the market. This variety should be extensively grown for the purpose. I consider the Brown Cos when well blanched is equally good in flavour, but it does not sell so well as the former, a fact that should be made a note of when preparing for the supply another year.—S., *Yorks*.

STRAWBERRY ROYAL SOVEREIGN.—Another season's experience with this Strawberry has proved it to be an excellent variety. Under ordinary treatment in a cool Peach house I had excellent fruits from pot plants at the latter end of May. For continuing the succession from the second early sorts until fruit ripens out of doors this Strawberry should take a high position. Not only does it set freely, but the fruit swells to a large size, puts on a fine colour, while the flavour is very good indeed. On plants growing in ordinary 32-sized pots I gathered many fruit weighing 1½ oz., as many as half a dozen such as these coming from one plant. Under some of the pots I placed a newly cut turf, grass side downwards, first well soaking the turf in liquid made from dissolved bones. Into the turf the roots quickly found their way, thus lessening the necessity for supplying water. The promise of fruit from plants growing in the open of this Strawberry is all that could be desired.—E. M.

WAKEFIELD PAXTON SOCIETY.—The programme of meetings for the second quarter—Session 1895—of this Society is as follows:—June 15th, "A Journey to Holland," Mr. H. Chapman. June 22nd, "Preparation for, and Bedding Out in Yorkshire Compared with the South," Mr. L. Twigge. June 29th, "The Strawberry," Mr. John Hepworth, Batley. July 6th, The Rose exhibition; essay by Mr. G. Bott. July 13th, Life Boat Demonstration; (no meeting). July 20th, Visit to Cannon Hall by permission; (arrangements will be announced). July 27th, Wild Flower exhibition. August 3rd, The Pelargonium exhibition; essay by Mr. W. Hudson. August 10th, "A Chat on Alpine Flowers," Mr. J. Wood, Kirkstall. August 17th, "The Pea and Kidney Bean" (exhibition of specimens), Mr. J. G. Brown. August 24th, (subject to be announced), Mr. J. Campbell. Friday, 30th, "The Carnation and Picotee as Florists' Flowers," Rev. F. D. Horner, Kirkby Lonsdale. Each meeting will commence at eight o'clock for business, and the lecture at 8.15 prompt.

— **VERBASCUMS.**—These are glorious this year. A mass of *Verbascum phoeniceum* of many colours is very telling. But the charm lies with *Verbascum pannosum*, two superb spikes far excelling *V. olympicum*.—G. B.

— **VERBASCUM OLYMPICUM.**—Although not quite so robust in growth as *V. Chaixi*, this is far more handsome, the woolly, silvery-looking foliage, pale and yellow rosette-like blooms forming quite a pyramid. Given abundance of space it is a charming hardy plant.—E.

— **QUEEN WASPS.**—These have been more plentiful than usual this spring. We have already destroyed upwards of 300, and many have escaped. As the young brood will soon be hatching, a sharp look out will be kept for their nests, and if the weather is favourable they will doubtless be very numerous this summer. It would be interesting to know if they are as numerous in other parts of the country.—YORKSHIRE.

— **ROYAL METEOROLOGICAL SOCIETY.**—At the ordinary meeting of the Society, to be held by kind permission of the Council of the Surveyors' Institution, at 12, Great George Street, Westminster, on Wednesday, the 19th instant, at 7.30 P.M., the following papers will be read:—"Hourly Variation of Sunshine at Seven Stations in the British Isles," by Mr. R. H. Curtis, F.R.Met.Soc. "The Frequency, Size, and Distribution of Hail at Sea," by Mr. H. Harries, F.R.Met.Soc.

— **CHOISYA TERNATA.**—Growing at the foot of a south wall—this was on May 16th—smothered with its white Orange-like blossoms, two plants growing closely together for the last eight years now cover a space 15 feet long by 5 feet high, and annually give an exceptionally heavy crop of bloom, which proves the desirability of maturation of the previous year's growth. Plants growing in the open do not, as a rule, flower so freely as those on a wall. Abundance of water at the roots while growth is being made after flowering is an advantage.—E. M.

— **THE WEATHER LAST MONTH.**—May was warm, dry, and bright, with the exception of the five days 16th–20th, which were much cooler. We had no frost after the 5th. The wind was in a northerly direction nineteen days. Total rainfall, equal to 0.74 inch, which fell on ten days, the greatest daily fall being 0.32 inch on the 17th. Barometer's highest reading 30.380 on the 2nd at 1 P.M.; lowest, 29.398 on the 17th at 9 P.M. Thermometer, highest in the shade 84° on the 30th; lowest, 33° on the 5th. Mean of daily maxima, 64.64°; mean of daily minima, 43.38°. Mean temperature of the month, 54.01°; lowest on the grass, 30° on the 5th; highest in the sun, 144° on the 30th. Mean temperature of the earth at 3 feet below the surface, 50.35°. Total sunshine, 235 hours 5 minutes. There were four sunless days.—W. H. DIVERS, *Belvoir Castle Gardens, Grantham*.

— **MAY WEATHER AT HODSOCK PRIORY, WORKSOP, NOTTS.**—Mean temperature of month, 53.6°. Maximum on the 30th, 80.8°; minimum on the 2nd, 32.2°. Maximum in the sun on the 30th, 129°; minimum on the grass on the 2nd, 25.4°. Mean temperature of the air at 9 A.M., 56.3°. Mean temperature of the soil 1 foot deep, 53.7°. Nights below 32°, in the shade 0, on the grass 7. Total duration of sunshine, 217 hours, or 45 per cent. of possible duration. Two sunless days. Total rainfall, 1.89 inch. Rain fell on seven days. Average velocity of the wind, 7.1 miles per hour. Velocity exceeded 400 miles on one day, and fell short of 100 miles on fifteen days. Approximate averages for May.—Mean temperature, 51.1; sunshine, 175 hours; rainfall, 2.11 inches. Except for a very cold week, from the 16th to the 21st, this has been a very bright warm month. The temperature is a record for May, and we shall have to go back to 1882 for more sunshine.—J. MALLENDER.

— **MANCHESTER SHOW.**—First-class certificates were awarded to Messrs. F. Sander & Co., St. Albans, for *Miltonia vexillaria* G. D. Owen, *Dendrobium Johnsoniae*, *Sobralias Veitchi rosea* and hybridum *Amesiae* *Wilsonia* × *xantholeuca*; to Messrs. Hugh Low & Co. for *Cypripedium Gertrude* Hollington; to Mr. James Cypher for *Laelias purpurata* Princess May and alba, also *Miltonia vexillaria* *splendens*; to Messrs. B. S. Williams for *Pescatorea klabochorum*; and to E. Ashworth, Esq., for *Cattleya Mossiae* John Ashworth. In addition to the certificates gold medals were awarded to Messrs. H. Low & Co. for *Cattleyas*; to Messrs. Jones and Sons, Shrewsbury, for bouquets and other floral decorations. Mr. Findlay's many friends will be pleased to hear that he is enjoying better health than was the case twelve months ago. He is trying to place the Society on a sound basis, a good start being made by the Earl of Derby contributing £100, an anonymous donor £100, and other gentlemen various sums.—R. P. R.

— **SOUTHAMPTON SHOW.**—Mr. Fudge writes:—"At this show a certificate of merit was awarded respectively to A. Henderson, Esq., of Buscot Park (gardener, Mr. W. Meads), for a collection of Melons *Hero of Lockinge* and *Sutton's Scarlet*; and to Mr. C. Dymott, Freemantle Nursery, Southampton, for a seedling *Pelargonium Harry Dymott*."

— **EARLY PEAS.**—Mr. J. Russell, The Gardens, Berrington Hall, Leominster, states that he sowed 200 pots (3-inch) with *Lightning Peas* on February 5th, started them in a vinery, transferred them to a frame on 28th of the same month, planted them on a south border March 16th; flowering commenced March 20th, and a good dish of Peas was gathered May 30th, crop full. The same variety, sown on the same border March 6th, will not be ready till the middle of the present month.

— **DICKSON'S RINGLEADER POTATO.**—The same gardener describes this variety as a good forcer. He began digging on May 26th from some that were planted in cold frames without bottom heat on March 3rd, having been previously set up in a vinery. Mr. Russell also says Dickson's *Golden Gem* Lettuce for early work is a perfect model.

— **HARDINESS OF SCARLET RUNNER SEEDS.**—There is no doubt whatever that seeds of this Runner Bean are not in any way affected by frost or rain. In a garden in this neighbourhood the bine was left on the stakes last autumn and remained there until April of this year, undergoing 28° frost, the seeds apparently none the worse for their exposure. Seven seeds were put into a Cucumber bed ten days ago; five of them have germinated, the plants making strong growth.—E. M.

— **SCARCITY OF SLUGS.**—Your correspondent, Mr. J. Murphy (page 475) mentions the absence of slugs, and attributes the cause to the severe winter and the heavy snowfall. But there must be some other cause for their scarcity, as during the past winter we had our share of severe frost and snow, and still slugs are quite as plentiful as usual, being probably somewhat protected by the Box edging with which the kitchen gardens are edged. In case your correspondent is afraid the slugs are like the snakes, banished from Ireland, a plentiful supply may be obtained from—A YORKSHIREMAN.

— **CARAGANA ARBORESCENS.**—This Siberian Pea-tree is now in full bloom in the parks of New York, and its bright yellow flowers appearing among the light green downy leaves make it really attractive. These flowers are often said to resemble those of the Laburnum; but really the flowers of the Laburnum, as they appear in long graceful racemes in England and other places where the climate suits the tree, are much handsomer. The Laburnum, however, does not thrive in this country except in a few favoured locations, while the Caragana, by its perfect hardiness and its adaptability to all sorts of soils, is a plant that we can always depend on. It sometimes reaches the height of 20 feet, and assumes a genuine tree shape. It will bloom when it is only 3 or 4 feet high, and it has a special value in that it produces flowers of a colour which is comparatively rare at this season. These Pea-trees, for there are a number of species and varieties in cultivation, belong to the Leguminosæ, and with the exception of the Red Buds, they are the earliest of the family to flower.—("Garden and Forest.")

— **VIOLAS FROM HAWICK.**—Mr. John Forbes, a well-known florist and advertiser, sends us a box of Violas. Amongst them we note as yellows *Lord Elcho* and *Mary Gilbert*, both very bright; *George Corbett*, paler, of the *Ardwell Gem* type. Purple margined yellows—*Duchess of Fife*, fine; *Goldfinch*, richer; *Border Maid*, paler. *Jackanapes* is also yellow with glowing crimson top petals. Whites are represented by *King of Whites* and *Sylvia*, both undoubtedly good, while the delicately tinted *Marchioness of Tweeddale* is pleasing. The *Peter Barr* varieties, with their Pansy-like centres, are represented by *Hamlet* and *Exquisite*, also a painted sport and a purple seedling, very rich. Among the purples and lilacs we find *J. B. Riding*, dark; *Fascination*, *Rosemary*, *Ariel*, *Sweet Lavender*, and *William Neil*, lighter. *Hugh Ainslie* is a pretty form of the *Countess of Kintore* ilk, and *H. M. Stanley* much darker than his adventurous prototype. Then there is the charming little *Violetta*, and some other dainties, such as *Blush Queen*, *Lyric*, and *Charming*—in different shades of peach. *Mrs. Primrose* is appropriately named, and is smooth and clear; while of lavenders we have *Bridegroom* and a particularly clear and attractive seedling, No. 27, but good as it is we scarcely think it twenty-seven times better than some of the others. The assortment shows what infinite variety there is in these sweet and pleasant flowers, which add to their value hardiness, and thus bring their culture within the means of all. Mr. J. Forbes had a magnificent collection of these flowers at the Manchester Show.

— **LINUM MONOGYNUM.**—This pure, white-flowered, New Zealand Flax is deserving of a place in any collection of herbaceous plants as a companion to the blue and yellow varieties. Linums prefer a rather dry soil, therefore they are convenient plants. From the middle of May until early in the autumn they continue to give an abundant crop of blossoms, so useful for mixing with other flowers in vases.—E.

— **MESSRS. SUTTON & SONS' ANNUAL EXCURSION.**—This pleasant excursion was held on Thursday, when for the first time Folkestone and Dover were visited by special train. The party, which numbered just over 600, was accompanied by Mr. and Mrs. Herbert Sutton, Mr. Arthur Warwick Sutton, Mr. Leonard G. Sutton, and the Misses Sutton. As usual, each married man received an invitation for his wife, and with the liberality which marks the firm on all occasions, not only was the train provided, but every person was presented with a sum of money sufficient to fully defray the expenses of the day.

— **NEW GARDENS FOR WOOLWICH.**—The ceremony of throwing open the new public gardens at Woolwich, into which St. Mary's Churchyard have been turned, was performed on Friday last, May 31st, by the Duchess of Fife. From first to last the work has cost about £1200. The soil of the churchyard is naturally composed of sand, necessitating the importation of considerable quantities of fresh material to mix with it, likewise to fill up the numerous holes which also abounded. Although the Metropolitan Public Gardens Association has only been in existence for about twelve years it has already accomplished much useful work, of which the services so lately rendered by it to the people of Woolwich are but an example.

— **CALADIUMS AT CHELSEA.**—Amongst the many plants that are grown at Messrs. J. Veitch & Sons, Chelsea Nursery, these must be accorded a very prominent position. When visiting there a few days ago I was struck with the splendid health of the plants and the richness of the leafage. Both the small and large foliaged varieties were in perfect condition, and proves that Mr. Tivey, the well known grower, thoroughly understands their cultivation. They are singularly beautiful plants, providing a leafage that is entirely distinct from any other, and of such peculiar blendings of colour as to render them practically indescribable. Particularly charming were Raymond Lemoinei, Ibis Rose, Madame Leon Say, Henry Irving, Excellent, and Lord Derby. These only make half a dozen out of very large numbers, all of which are worth growing by the lover of handsome foliage plants.—VISITOR.

— **THE SEEDS OF WEEDS.**—Some interesting investigations have been made at the South Dakota Experiment Station on the distribution of weed-seeds by winter winds. For example, says the "Garden and Forest," the contents of snow-drift on ploughed land 2 feet square, 3 inches deep, and 10 rods from any standing weeds, were melted, and thirty-two weed-seeds belonging to nine species were found in it. Other tests confirm the fact that seeds are carried great distances on the snow. Another test was made by pouring half-bushel piles of Oats and Millet on the snow-crust when the wind was fifteen miles an hour. Both Millet and Oats passed a point 20 rods from where they had been placed in forty seconds. A twenty-five-mile wind was found to drift Wheat-grains 30 rods in a minute. Of course, when winds on the plains keep blowing in one direction for days, seeds will travel many miles. The moral of these investigations seems to be that in the great western plains, at least, bare summer fallowing and matured weeds in waste ground may help to scatter seeds during the winter over great areas and they will be buried in the soil when the snow melts.

— **CHESHUNT, WORMLEY, AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.**—The above Society held the last meeting of their spring session at the school, Wormley, on June 6th 1895, when a most practical paper was read by Mr. W. Easlea, Waltham Cross, on "Roses." The following lectures have been read during the spring session:—February 5th, "Leaves, and Their Functions," Mr. W. Dyke; February 12th, "The Influence of Light on Plants," Mr. J. Godber; February 19th, "Plant Food," Mr. W. Dyke; February 26th, "Carnations," Mr. A. E. George; March 5th, "Pelargoniums for Market: Description and Culture," Mr. W. L. Yates; March 14th, "Nitrogenous Manures, and their Effect," Mr. J. Guy; March 29th, "Strawberries," Mr. A. Faulkner; April 11th, "Mushrooms," Mr. A. Hayes; April 25th, "Heating Apparatus as Applied to Horticultural Purposes," Mr. W. Harrison; May 9th, "Manures and their Application," Mr. W. Dyke; June 6th, "Roses," Mr. W. Easlea. This speaks well for the Society's welfare, for it was only started last February, and now possesses eighty-five members.

— **"BOTHIANA."**—Allow "An Old Boy" to express his gratification at the kindly note from "P. J. G., Warwickshire" (page 496), with the earnest hope that he and his compatriots may derive all the benefit they anticipate from the advice given, and more also.

— **IRIS KOCHI.**—Among the large early-flowering bearded Irises this stands distinct among the many purple kinds now in bloom. The large flowers are of a peculiarly rich dark vinous-purple colour, which is very effective and striking. Besides the typical *I. germanica* there are a number of hybrids in the same section with various shades of purple, but none more effective than this Istrian species.

— **ABUTILON VITIFOLIUM.**—Mr. Baylor Hartland, Cork, sends us beautiful flowering sprays of this handsome Abutilon, which has been figured in the *Journal of Horticulture*, when it was referred to as follows—"It is only in favoured climates like the west of England or some districts in Ireland where this tree attains to very large proportions. In most cases where it is found in gardens it is an inmate of the greenhouse, and very seldom can an adequate idea be then formed of the beauty of the shrub when fully developed. The flowers are large, of a delicate purplish or bluish mauve, not unlike the stately *Meconopsis Wallichii* in tint and form. They are produced in great abundance, and in contrast with the large dark green lobed leaves they have a fine appearance."

— **CLEMATIS MONTANA.**—One of the most charming cottage garden pictures I have ever seen was a magnificent old plant of this pretty Clematis, on an empty cottage in a Suffolk village last week. It had apparently been planted on a porch, but this had long since fallen to decay, and the long pendent shoots of the Clematis were abundant, and wreathed with the beautiful white flowers. It had also mounted to the thatch and covered the roof, hanging in festoons from the chimneys and gable. Few hardy climbers can compare with this well-known and handsome Clematis. It is not only one of the easiest of all to grow, flourishing in any ordinary soil, but beyond cutting away a few shoots that may be encroaching on anything else, no pruning, nailing, or any cultural operation is needed. The more natural the growth the more graceful is its appearance when in flower, and if closely nailed or tied this is sadly marred.—H. R. R.

— **ADVANTAGES OF GREEN MANURING.**—Dr. Webb gives the following as the typical advantages of green manuring:—There is a direct addition of plant food to the soil, as during the growth of the plant it absorbs food from the air, and the upper layers of the soil are enriched by matter brought up from the subsoil, and which, when the plants are ploughed in, becomes almost immediately available for the succeeding crop. With certain crops this gain in plant food is much more marked, as it consists in an increase of the nitrogen in the soil at the expense of that of the air. The plants which possess this power of abstracting nitrogen direct from the air are those belonging to the natural order Leguminosæ, to which order belong Peas, Beans, Vetches, Clover, Sainfoin, and Lucerne. On the rootlets of the plants of this order are a large number of small nodules or tubercles. These are the home of micro-organisms capable of abstracting free nitrogen from the air and forming nitrogenous compounds. The greater portion of this nitrogen ultimately finds its way into the plant and is there made use of. The benefit is not confined to the Leguminous crop alone, but where that crop is ploughed in, or even if only the roots are left, the soil becomes so enriched by the accumulated nitrogen that greatly increased crops result. Dr. Wagner of Darmstadt conducted experiments to test the effect of the above. Two equal plots were taken, and on one White Mustard, and on the other Vetches, were ploughed in, and Oats sown. Each received an equal dressing of chemical manure, but the yield on that where Vetches had been ploughed in was twice that on the one where White Mustard had been ploughed in. Similar experiments were conducted by Heiden, Rye being taken (1) after Lupines ploughed in, and (2) after bare fallow. The relative yields of the plots were:—Plot 1, 96 of grain and 205 chaff and straw; plot 2, 56 of grain and 114 chaff and straw. The importance of this fixation of free nitrogen cannot be over-estimated, as it provides a large quantity of the dearest manurial constituent without cost. 2, The food added to the soil by green manuring cannot readily be lost by drainage. This explains the advantage which light land derives from it, that class of land not usually being retentive of plant food. 3, A large quantity of humus is added to the soil, the benefit of which has already been noticed. 4, During decomposition of the vegetable matter mineral matters are rendered available for plant food, owing to the effects of the products of decomposition.

— **TRINIDAD BOTANIC GARDENS.**—The annual report of the Royal Botanic Gardens, Trinidad, for the year 1894, compiled by the Superintendent, Mr. J. H. Hart, furnishes evidence of the practical value of these colonial botanic gardens, and of their relation with the central institution at Kew. Under the Economic Section, information is given of the growth in the island of the Sugar-cane, Cacao, Coffee, Yam, Gambier, Vanilla, the Brazil Nut, and Cola, and of the principal enemies of these crops, and the best mode of combating them.

— **R.H.S. EXAMINATION.**—As one who sat at the above examination on May 1st, I fully agree with "W. D." (page 500), that the time allowed was much too short. One question alone (No. 13), on the culture of Grape Vines, would take from three-quarters of an hour to an hour to answer fully and well. I think "E. D. S." has given very fair answers, but it is a different thing sitting down quietly at home and writing at leisure, from sitting in an examination room, with only so much time to do the work in. In the "Science" Exam., 1895, subject "Geology," the time allowed is three hours, with only five questions to attempt to answer in the first or second stage, and only four in the honours stage. I sat for the first stage, and although the questions were not nearly so stiff as those of the R.H.S., the time allowed was not too much.—J. E.

JOTTINGS IN HYDE PARK.

MANY of the flower beds in Hyde Park are now specially attractive. Some of them have been a blaze of bloom for a considerable time. The beds of Pansies, for instance, are exceptionally good, and merit the close attention of any visitor who delights in seeing these flowers at their best. The beds containing the plants are large, and accommodate some hundreds, all of which are in a healthy vigorous condition, and flowering profusely. Numbers of them bear blooms of remarkable size and substance, which, intermixed with those of lesser sized flowers, form a very pleasing combination.

One of these beds was edged with London Pride (*Saxifraga umbrosa*), another had a band of Lord Beaconsfield Pansy, and a third of Aubrietia Leitchlini. At Whitsuntide the latter was nearly out of bloom, but the London Pride was peculiarly attractive in its simple array of tall pretty spikes fringing the Pansies of varied hues. One bed of Pansies had clumps of Solomon's Seal rising from among them, and very pretty the drooping flowers looked on the graceful arching stems.

Dark Pansies intermixed with Aquilegias of bronzy hues formed a good combination. Pansies and Violas were largely employed as edgings. Brown and dark Pansies of various shades provided an attractive band round one bed filled with dwarf white Stocks, extraordinarily floriferous and regular in size. The plants were not only furnished with a fine central spike but with side shoots correspondingly good. A bed of red Stocks was equally effective. This was edged with white Arabis alpina, of course long since out of bloom; but the effect can be imagined if the Stocks were in bloom, too, when the Arabis was at its best. Violas Blue Bell and Lilacina respectively edged beds of dark-foliaged Sweet Williams, throwing up bloom spikes which will shortly prove to be *en masse* a gorgeous spectacle. The pale yellow Viola Ardwell Gem was employed as an edging to beds of herbaceous Phlox, which had every appearance of being the white variety.

Owing to the variety of plants employed, every week throughout the summer will bring forward something prominent. Beds of Carnations and Pinks are advancing fast. An edging of *Lysimachia nummularia aurea* is used for circular beds of Carnations Baby Castle and Germania, both varieties having remarkably sturdy flower spikes. Similar beds of Queen of Bedders and Danger Carnations are edged with *Antennaria*, always an attractive, compact edging, and quite hardy. Another bed of Carnations, oblong in shape, is filled with Alice Ayres, and bordered with the succulent *Sempervivum californicum*.

Antennaria is also employed as an edging to a large oblong bed planted thinly with *Campanula Mediana*, the spaces between being filled with Pansies. *Herniaria glabra* forms an edging to a bed of *Mimulus*.

Numerous other beds were prepared ready for planting, while Auriculas, bulbs, Primroses, Dielytras, and other things had still to be removed at the beginning of the month to be filled attractively for summer and autumn. Mention ought to be made of the single red Pyrethrums, which surpassed the double forms in attractiveness. Then there were beds completely occupied with Fuchsias, which will eventually prove most interesting. One had a groundwork of Ten-week Stock just planted. Beds which promise to be most attractive are those with scented-leaved Pelargoniums, interspersed with fine plants of *Anthericum variegatum*, having a groundwork of *Mimulus* and edged with blue Lobelia.

Another bed has white, yellow, and lilac Violas with clumps of Zonal Pelargonium Titiens and *Anthericum variegatum*. A very pretty bed is composed of red Stocks, Mignonette in bloom, and Earl of Beaconsfield Pansy. Good bushy plants of Ivy-leaved Pelargoniums are also employed, one bed having a groundwork of Violas, lilac and blue, edged with white Lobelia.

Other effective and tasteful combinations will be found by the visitor to this attractive metropolitan park, which is frequented by all classes, few of whom do not admire the banquet of floral beauty constantly displayed before them through the efforts of the Superintendent and his assistants.—E. D. S.



NATIONAL CHRYSANTHEMUM SOCIETY.

WE are requested to state that the annual outing of the members of the above Society will take place on Monday, July 22nd, and will take the form of a visit to the gardens and grounds of Burford Lodge, Boxhill, the residence of Sir Trevor Lawrence, Bart., one of the Vice-Presidents of the Society.

DISTRIBUTION OF NEW CHRYSANTHEMUMS.

EARLY in February I wrote to a grower of new seedlings for a set of his novelties for 1895 in the hope of getting them for a friend who wanted to grow them and show them in the coming season. The first week in June has now passed and the plants have not arrived, and when they do they will probably be merely rooted cuttings 2 or 3 inches long. By that time the whole of my friend's collection will be established in their flowering pots, and under our method of culture well advanced for the purposes required. I merely draw attention to the matter to show how little cause of complaint such people have at their novelties not receiving due recognition at our hands. It is perhaps unnecessary to add that the grower in question is not an English one.

NEW CHRYSANTHEMUMS FROM JAPAN.

I have just returned from the interesting little exhibition of water-colour drawings by Miss Hill Burton at the Clifford Galleries, Haymarket. Pleasing as it is as a whole, I was disappointed to find that, although she deals with the Pæony, Iris, Water Lily, Cherry blossom, Wistaria, and Azalea, as they are grown in Japan, the claims of the Queen of Autumn have been entirely overlooked, for there is not a single picture of the Chrysanthemum in the whole collection.

By way of compensation, however, I find on my table an illustrated nursery catalogue from Japan, which contains a list of new and old varieties, with a large folded sheet of new seedling Chrysanthemums for 1895 that are positively gaudy and painful to the eye after gazing at the soft and delicate tones of colour employed by Miss Burton in her drawings.

These native Japanese illustrations seem to have been produced by a mechanical method of chromo-lithography, such as would be found in any of our trade catalogues, and are not to be compared with some of the work I have seen on rice paper and on silk. The flowers are not remarkable for their size, but there are one or two forms that appear to be of a striking character if reliance can be placed upon the pictures. One variety called Diamond is a Japanese with outer florets tubulated, the inner ones cupped and slightly incurving, notched at the tips, the colour deep chrome yellow, the centre suffused with green after the manner of Florence Davis. Royal Banner is a loosely incurved Japanese of the Mrs. Wheeler type, with inside of florets bright crimson lake, and reverse golden buff. Torchlight, a Japanese, a rich shade of crimson orange and golden reverse. Frost of Battlefield, a white incurved Japanese, curiously tipped with pink, reminding one of the old variety Aimée Ferrière.

It is a sign of the times that the Japanese nurserymen are naming their newest acquisitions in English instead of in their own tongue, although the older varieties retain their native names. From a cultural point of view, it may be interesting to give the measurements of some of those quoted in this catalogue. The majority are from 7 to 8 inches in diameter, but the gems of the collection from the big bloom standpoint are Tora-asobi, 8 to 9 inches across; Usu-sakura, the same; Kudsu-rio, also 8 to 9 inches; Coten-sakura is 8 to 10 inches in diameter; Kano-ko-jima, 8 to 9 inches; but the palm seems to be given to one named Hotei-maru, 10 to 12 inches. We should, of course, have been grateful to our Japanese friends if they had favoured us with translations of these curious looking names.—C. H. P.

BEGONIA SAMUEL POPE.

OF late years there has been a really extraordinary improvement in the tuberous-rooted Begonias, both amongst the single and double varieties. This was readily perceptible at the Temple show, where some superb forms were staged. In Mr. T. S. Ware's arrangement one of the most conspicuous was a double variety named Samuel Pope (see illustration, fig. 94), to which the Floral Committee rightly adjudged an award of merit. As will be seen, the shape of the flower is perfect, and it is also quite double; in colour it is distinct, being cream edged in Picotee fashion with bright rose.

APPLES AND STOCKS.

TIME was when I read much, swallowed much, and probably digested little of the varied literature connected with horticulture, but as time goes on one is apt to form conclusions of one's own, and to say to one's self, "I do not agree with this or that." It is quite safe to do so in

one's easy chair, but before doing so in print it is as well to examine the signature of the writer lest one should haply "catch a Tartar." Well, having read the remarks of Mr. Molyneux on page 475 I said to myself, I cannot let this pass without notice. Here is Mr. Molyneux, a man known by repute to all the horticultural world, telling the public through the medium of your well-known Journal that, practically speaking, it matters not what kind of stock is used for the Apple, as the cultivator can get equally good results from Paradise, free stocks, or Crab. I have not quoted his words, but I take this to be the sense of his remarks. If I have rightly understood him I must say that he takes a view which is diametrically opposed to all the experience which I have had and that of most cultivators, and at the risk of "catching a Tartar" I must beg leave to differ with him.

That Mr. Molyneux personally is able to obtain equally good results from Apples on all the three stocks mentioned I do not for a moment

that had the trees been carefully root-pruned at the time they were closely head-pruned, things would have been different. But then the general public does not know all this. Root-pruning is to many an unknown science, and I maintain very properly so, as it is a surgical operation to be taken in hand advisedly by the skilled gardener when his trees are worked on unsuitable stocks, but otherwise seldom needed, and far best left alone.

Now theory is one thing, practice is another; and again there are various kinds of practice. Mr. Molyneux is a skilled cultivator, mixes with other skilled cultivators, and has possibly instructed some of his less gifted neighbours. I, on the other hand, come in contact in the course of business with a very large number of less skilful gardeners, working men, allotment holders, and amateurs, and during the planting season it is a matter of daily occurrence for people to come and say "I want some pyramid Apples on your Paradise stock to plant in place of



FIG. 94.—BEGONIA SAMUEL POPE.

doubt, but because he is able to do so it by no means follows that everyone else can do the same.

Speaking of "garden trees," let us begin with the pyramid, which is the most ordinary form of culture for a garden. I admit that on poor gravel or sand, which is hardly fit for fruit culture at all, and which demands a genius to obtain anything like a satisfactory result, the Crab and free stocks have their advantages, but for anything like good soil there is not the least comparison between these and the Paradise. The ordinary cultivator of pyramid trees in a garden has only one failing, but it is a serious one. He prunes his trees too closely, with the result that they are filled with wood; thickets into which one could not thrust one's hand to take a blackbird's nest; and fruit is unknown, at any rate for some years, and then only on the outside of the tree where the wood has been able to ripen. The reason that he feels bound to adopt this rigorous method of pruning is that his trees, grafted on the Crab or free stock, will make so much growth, whereas had they been on the Paradise they would have made far less growth and far more fruit spurs. Of course I well know that the luxuriant growth was probably helped by over-kindness on the part of the cultivator, who manured his young trees as freely as though they had been in full bearing; and I also know

my pyramids on Crab stocks, which seldom or never fruit, and which I am going to dig up." So true is this that, setting aside orders received from market growers, I should say fully half the retail orders we have are for this purpose. Again, it is not only amateurs that have made the discovery that Apples fruit more freely on the Paradise than on the free stock, or why are market growers planting trees on the Paradise by the thousand

Of course I do not say that early and continuous bearing are the only merits of Apple trees worked on the Paradise. One must also bear in mind the fact that the fruit they bear ripens at least a week or ten days earlier, at any rate in the Midlands, which in a cold climate is no small advantage; and further, it is much more brilliant in colour, and far superior in point of flavour. To reduce this to hard fact a market grower in Lincolnshire told me last autumn that he had planted a field of pyramid Apples, part on the Crab stock and part on the Paradise, and that not only did the latter bear much more fruit, but that it made 30 per cent. more money in the market, and he was seriously contemplating the advisability of digging up his 12 acres of trees on the Crab (just coming into bearing) and replanting with trees on the Paradise.

One more note and I have done. Every gardener remembers with

morrow the disastrous frost we had in May, 1894. We had in our nurseries a flat of espalier-trained Apples, part on the Paradise and part on Crab, the flat was rather over quarter of an acre. The greater number was on the Paradise. The trees were four years old, spurred, and well set with bloom, the varieties comprising quite a collection. After the frost only two varieties carried fruit on the Crab stock, whilst those on the Paradise stock carried a full crop. I am aware that "One swallow does not make a summer," nor does one observation prove a fact, but I may say that last August I had the pleasure of spending a day or two in Mr. Bunvard's nurseries, and I found there the same tale. His quarters of Apples on the Paradise were loaded with fruit, which he was selling at 12s. a bushel. Why? because his neighbour's trees on the free stock had failed to carry fruit.

We know that certain kinds of Apples—for instance, Lord Suffield, Cellini Pippin, or Potts' Seedling—will crop on anything on which they will exist; but for any restricted form of cultivation, be it as cordon, espalier, pyramid, or what not, it is, in my opinion, a fallacy to tell the general public that the choice of stock matters little, as I maintain that "on this the whole secret of success hinges."—A. H. PEARSON, *Chilwell, Notts.*

WATER WANTED.

IF the cultivated plants and pastures we are everywhere growing could speak as we read in the fable the birds and beasts once could, no doubt they would tell us of great suffering endured from want of moisture. We who are sentient creatures know but too well that whilst hunger may be hard to endure, the pangs of thirst are far greater and more painful. Thus it is when we see under the hot sunshine and in parching wind the plants in gardens and fields hanging their heads and leaves because of thirst, we can imagine hearing them to moan in pain and to cry for water, water! Unless that imperative need for water, and plenty of it, is speedily supplied great harm will be done, crops of all descriptions will greatly suffer, and our labours in cultivation and in cropping in field and garden will be sadly discounted. It does seem as though we were ever anticipating blessing, but were never destined to secure it.

Our seasons are in no sense ideal ones. To go no further back than 1893, drought, long intense drought, so universally ruled that great loss resulted nearly all over the kingdom; crops that under ordinary conditions might have been heavy were reduced one-half, two-thirds—indeed, in some cases, as grass for instance, were practically non-existent. We had some compensations in the autumn, but not such as could repay for the summer shortcomings. 1894 was as wet as the previous year was dry, and it was in many ways a year of disaster with little compensation. The present year coming directly after two such opposite seasons might naturally have been expected to be of a normal type, not hot or cold, not wet nor dry, but partaking of each moderately. That is, however, not our experience so far, and one-half of the year is nearly gone. Nature seems resolved to adhere to extreme moods, hence we have had up to the present for the half year a remarkable minimum of rain, whilst early there was excessive cold and lately almost as excessive heat.

The most critical time for all our crops has now been reached, and if no rain falls before the month closes then the injury done may prove to be great and irreparable. I am writing on the 8th inst. Last night the clouds, though light, bore an aspect of change. There was evidence of thunder in the air and accompanying rain. This morning the sky is hard and clear, and the sun shines out a hot blazer. There is not a shadow of cause for hope that change is imminent, though it does seem as if the heat must soon generate thunderstorms. But it is less such terrible downpours as often accompany electrical storms that we need just now, than a gentle steady rain lasting for twenty-four hours, and fertilising the soil without beating it, or splashing and injuring crops. Alas! we may have long to wait before we get either. What a pity it is that such splendid weather, a meteorological aspect tending to show that sometimes England can wear a very warm smile indeed, should yet do harm. For all who care only for pleasure, and for some occupations, such as building, the weather is magnificent; but for all who work on the soil, and are dependent on its produce for a livelihood, the weather is deplorable.

Now again crops up the old subject for discussion—a water supply for gardens; but it is a very difficult one, seeing that there are myriads of gardens dependent for water on pumps and wells, whilst only in the comparatively few is there a constant supply. But even with these there is limitation of use, as no artificial supply can in any way compensate for the absence of rain when spread over several weeks. It is often urged that water which at certain times of the year falls too abundantly should be stored. That is easily enough advised, and even carried out where the expense of providing a huge underground reservoir is readily met. But huge must be the storage that would enable any gardener to satisfy the demands of all his crops during such a spell of drought as that is we are now experiencing. None the less, it is so obvious as to be incontrovertible that the greater the water supply during a drought the better for the garden in every sense.

Any effort to utilise natural water sources for general irrigation would at once drain our rivers and streams dry, and still leave the uplands as parched as ever. Everywhere, even where the soil is naturally retentive, we see the best crops now where soever the practice of deep working has been adopted. It is just such seasons as the present which show the exceeding value of trenching. There lies below, as it were, a reservoir of moisture, that is accessible to crops only when the soil is

deeply worked, and from which crops on shallow worked ground are debarred. Only yesterday, looking over some allotments, I remarked to one holder that one portion of his crops were so much stronger and fresher than they were on another part. His reply was, "Yes, I trenched that part; but this last I had only time to dig over, and that is the cause of the difference." The same results may be seen in all directions, but especially so on allotments, where the working of the soil varies so much.

In good gardens it is impossible to conceive of soil that is not always regularly trenched. If it be not, then the gardener has less reason to complain of the drought, hard as it is to withstand, than of his own neglect to give his crops every chance to withstand it. There seems to be no element in garden culture less artificial, and yet productive of more permanent benefit, than is found in the practice of deeply working the soil.—A. D.

EXPRESS GRAPE GROWING.

I AM obliged to Mr. Innes for his reply to my query as to what his Grapes averaged per pound, given on page 478, and congratulate him in bringing so much out of so heavy a crop.

As to the difference in opinion regarding finish in market Grapes, which your correspondent thinks so simple a matter and so universally understood, all I can say is that it is a pity it is so seldom practised. I, perhaps, may have too high and particular notions as to finish in Grapes, but the great bulk of the fruit I see placed on the market has very little finish, and certainly lacks that which gives the Grape its noble and luscious appearance.

Mr. Innes has erred in his calculation regarding the heavy crop I mentioned. It is my fault, as in the hurry-burry of Grape-thinning I wrote a hasty note, and omitted to mention that the 300 feet long house had only fruit on one side. This would give only 120 rods, at 2 feet 6 inches apart, in place of 240, as your correspondent had it, and consequently will work out exactly double the crop, or twenty-two bunches on each Vine, and 21 lbs. 12 ozs. per foot run of rod. But even this weight I am aware is not anything very extraordinary, and I must have underrated the particulars, as I only saw the crop once, and wrote from memory, not having taken any notes. We have one side of a house planted with Gros Colman, 300 feet long. The Vines are from 8 to 9 feet long, and are carrying seventeen bunches each; many of them should weigh 3 and 4 lbs., and though scarcely half swelled, yet will not look nearly so heavy as the crop I saw and referred to.

It is gratifying to see so many "Growers" taking part in this discussion, and I trust that others will enter and give all your readers the benefit of their knowledge, as there is no doubt that in the matter of Grape growing market growers are far in advance of the mass of private gardeners. Like Mr. Innes, I am a firm believer in the wonders that are, and still can be, done with the Grape Vine under proper treatment, and look forward with interest to more details of other successes in the pages of the Journal soon, and hope myself to add my own share when reverting again to this subject later in the season, which I intend to do with the Editor's permission.

In connection with Gros Colman Grape, it was interesting to read Mr. John Thomson's remarks on page 476. His late father was, I believe, the first to introduce and push this variety into prominence as a market Grape, and we all know how well the same Vines have been grown at Clovenfords for over twenty years. Like Mr. Thomson, I too was at one time under the belief that shading the glass would prevent the foliage cupping and browning to such an alarming extent as it very often does. However, after testing this plan on two occasions I found it did little or no good. The principal cause of injury to Gros Colman foliage, in my opinion, is injudicious airing. We have been very fortunate in preserving the foliage of our Gros Colman up to the last; indeed, we make this a special point in our Grape growing, for we do an extensive business with autumn-tinted Vine leaves, and as every practical Grape grower knows, unless the leaves are clean and healthy they are of no use for decorative purposes. Our soil is light, and outside borders are all raised above the level of the surrounding ground, and in a dry locality. These three things are all against the preserving of the foliage of Gros Colman, and we attribute our success to never at any time using side ventilation, and if the house is large as little as possible on the top on windy drying days, giving instead additional dampings and keeping down fire heat. Another important point is abundant moisture at the roots, and the liberal use of fertilisers. This latter point is of great importance if heavy crops are borne and the leaves kept healthy. We believe in dressing the borders often, giving smaller doses, and continuing the practice on till late in autumn, as good feeding in the autumn tells with marked effect on the succeeding year's health and vigour of the Vines.—MARKET GROWER.

P.S.—Since sending my communication I have been favoured with a photograph from Mr. Innes of the house of Gros Colman he mentioned, and from which was taken the very interesting figures as to crops and prices for the last eight years. The photograph shows a very fine crop of good even-sized bunches, and is creditable to both grower and photographer.—MARKET GROWER.

I FEEL highly honoured by the compliment conferred on me by your correspondent on page 495 last week. Mr. Thomson still lingers over my little Vines, and asks where I got the abundance of fine healthy fibrous roots. Well, I found them in the pots attached to the little Vines.

I would remind Mr. Thomson that no amount of incredulity can possibly alter facts, and facts speak for themselves.

So far the greater portion of this discussion has been conducted on purely theoretical lines, as there appear but few of your correspondents who have ventured out of the old track. If my little Vines were not grown in the best possible way before planting, they gave ample proof of their appreciation of the treatment they received after planting. I gave them my best attention and fed them on the best of food, and I was highly gratified by the result.

I can from experience recommend those about to embark in Grape growing to try the newer method, which I have found so successful. I fancy there are but few market growers in the present day who would care to wait two years after planting before getting a crop of Grapes. The little Vines under discussion are not the first or the last I have planted out of 3-inch pots with equal success, and which I hope to give some account at a future time. I may add that I have found that the successful cultivation of the Vine depends more on unwearying labour and close attention to detail than to luck.

I ought to feel deeply grateful to "Examiner" (p. 495) for the trouble he has taken in correcting my errors in reference to the crop of 2700 bunches of Grapes in a house 300 feet in length, referred to by "Market Grower," page 425. I do not know where "Examiner" obtained his information, perhaps he may be in possession of facts which I do not possess. "Market Grower" makes no reference to the number of Vines, or the class of house in which the Grapes were grown. Assuming the house to be a lean-to, "Examiner" would be quite correct by stating that the number of Vines at 2 feet 6 inches apart would be 120, but with respect to his other calculations he appears to be slightly out; 120 Vines carrying the above number of bunches would average twenty-two and half bunches per rod, not twenty-three. The weight per rod at 1½ lb. per bunch would be 33¾ lbs., and not 40 lbs., as stated by "Examiner." I assume that the house is span-roofed from the fact that it was devoted to Gros Colman Grapes, and grown for market, and if so I think my figures are not very far out. "Examiner" estimates the crop at 2s. per pound, whereas "Market Grower" distinctly states the price at 1s. 1d. per pound, while he is not sure if all the crop was fit to sell, and that puts the matter in a very different light.—WM. INNES, *Derby*.

FROM Mr. J. Thomson's note (page 495) on the straw-like Vines grown by Mr. Innes I conclude he cannot have visited the Sunny Hill Vineries or he would not continue harping on the one string (though I have heard the fine air of "Auld Robin Gray" played on one string, causing a thrill never to be forgotten). Thirty years back I about committed to memory the late Mr. William Thomson's book on the Vine. It gave me ideas then that you could do almost anything with the Vine, and when I look over thirty years' notes on the cultivation of Grapes, seen and carried out by myself and others, I find that Mr. Innes' cultivation is beaten in several instances—one in Derbyshire (the able gardener now gone to rest), though this was only a small house of Alicantes.

But Mr. Innes' Grape growing was carried out on an extensive scale—fine lofty houses, well heated and well ventilated; rods as straight and regular as rods could be, with bunches hanging from the border to the full length of the rods, principally Muscats and Gros Colman, perfectly finished in colour, equally sized large berries, all the shoulders taken from the Gros Colman bunches, and they generally hung in pairs. My first visit to see these Grapes was through purchasing a basket after Christmas. They came in such splendid condition, and were of such fine flavour, that my employer said by all means go and see them, and many visits I made afterwards to take a wrinkle. Muscats and Gros Colman every year I found improved, and generally some little addition in engineering skill for raising and warming water and heating the houses.

I will quote the history of one remarkable Vine growing at one end of a lean-to house, raised from a straw-like plant, as Mr. Innes, generally from what I saw, planted these small things. The Vine in question was a Barbarossa (Gros Guillaume), and the third year (1892), carried thirteen bunches of jet black Grapes weighing 108 lbs. In 1893 it carried ten bunches, weighing 83 lbs., the berries being very much larger than the previous year, the largest bunch weighing 12½ lbs., the smallest 5½ lbs. The most noteworthy features, however, relating to these crops of Grapes were the fine quality and flavour. Some of the houses I noted a few years back, I think in the Journal. I may add another fact—namely, the character of the wood. It was nothing gross, but the thickness of an ordinary lead pencil gives the general idea of the laterals that carried these good Grapes.—GEORGE BOLAS.

ROYAL HORTICULTURAL SOCIETY.

JUNE 11TH.

THE exhibition at the Drill Hall on Tuesday was a very fine one in every way. Hardy flowers were seen in great numbers and diversity, and the quality was excellent throughout. The display of Pæonies was the finest ever seen, and Roses were also conspicuous. Orchids were shown in the best of form, but were not so numerous as we have seen them at this season of the year. The Fruit Committee had not many exhibits before them, and they were as usual variable in quality.

FRUIT COMMITTEE.—Present: T. Francis Rivers, Esq. (in the chair); and Rev. W. Wilks, with Messrs. J. Cheal, A. H. Pearson, F. Q. Lane, H. Balderson, G. Wythes, G. H. Sage, W. Farr, R. Fyfe, A. Dean, J. Hudson, J. Wright, and Dr. Hogg.

Before the commencement of business Mr. A. H. Pearson referred in appropriate terms to the great loss of the Chairman by the death of Mrs. Crowley, and it was proposed by him, and seconded by Mr. J. Wright, "That the members of the Fruit Committee wish to express their deepest sympathy with their Chairman in the great loss and sorrow which has recently befallen him." Carried unanimously.

The Committee then proceeded to examine Melons, Strawberries, Tomatoes, and vegetables that were sent for examination. Mr. T. Spencer, The Gardens, Goodrich Court, Herefordshire, sent a very large scarlet-flesh Melon, Goodrich Seedling. The flesh was the reverse of thick for the size of the fruit, which was not fortunate in receiving any award. Mr. Owen Thomas sent from the Royal Gardens, Windsor, two new Melons. One named *The Lady* is a medium sized white Melon, without netting, and of splendid quality. The rind was thin, and flesh a mixture of green and red. A member proposed an award of merit, with an intimation that a finer fruit might be forthcoming to justify a first-class certificate. This was carried unanimously: A jocular remark passing across the table that some of the critics required another tasting treat. The other fruit sent was named Pine Apple, a boldly netted pale green flesh Melon, but the flavour was considered too strong and musky.

A grand dish of the Leader Strawberry was placed on the table, also a dish of Laxton's Monarch, a good-sized fruit of splendid quality, and the exhibitors, Messrs. Laxton Brothers, were requested to send a plant in order that its character could be appreciated pending the possible award of a certificate. Mr. J. Collis, Rollo Lane, Chiswick, sent a dish of Collis's May Queen Strawberry, a medium sized pleasant fruit. The variety has previously had an award of merit.

Mr. J. Hudson sent from Gunnersbury House Gardens a box of splendid Lord Napier Nectarines gathered from a tree bearing 400 fruits, and which last year had 600. A cultural commendation was promptly awarded. Mr. J. Corbett, gardener to the Rev. the Marquis of Normanby, Mulgrave Castle, sent a dish of his Tomato *Excelsior*, small to medium sized fruits of excellent quality, firm, and of enjoyable flavour. It has been proved a free bearer at Chiswick, and an award of merit was granted.

Mr. R. Filkins, Oakhurst Gardens, Chislehurst, sent a basket of Potato Queen of the Earlies, clean and excellent tubers, resembling Early Laxton. The tubers were planted outside on March 13th, and digging commenced last Saturday. Referred to Chiswick for trial. Samples of Spinach were sent from Chiswick, one variety named "The Carter" was remarkable for its large thick leaves, and as it is evidently the last to run to seed, was granted an award of merit under what was considered undoubtedly its proper name, *Longstander*. The seed, an excellent stock, was supplied by Messrs. Carter & Co., and the variety is worth growing everywhere. T. H. Stables, Esq., Belmont, Salisbury, sent a bundle of large blanched Asparagus, for which a cultural commendation was awarded.

Mr. H. W. Ward sent three dishes of Peas—Lightning, William Hurst, and Telegraph, transplanted from pots. Good gatherings were made on 20th May; samples excellent, and a cultural commendation was granted unanimously. Mr. J. Crook, Forde Abbey, Chard, sent bearing plants of Chelsea Gem Pea, grown without protection, and was accorded a vote of thanks.

A silver medal was recommended for twenty-four beautiful dishes of Tomatoes and boxes of The Marvel Cucumber, exhibited by Mr. Mortimer, Rowledge; also bronze medals to Mr. G. Wythes and Mr. A. Pentney, The Gardens, Worton Hall, Isleworth, for collections of vegetables, a similar award being granted to Messrs. Laxton Brothers for Strawberries.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); and the Rev. H. H. D'Ombraim, with Messrs. H. B. May, J. Fraser, O. Thomas, J. Laing, C. T. Druery, H. Herbst, R. Dean, R. Owen, W. Bain, C. Blick, E. Beckett, H. Cannell, J. D. Pawle, J. E. Shea, J. Walker, G. H. Engleheart, G. Paul, J. T. Bennett-Poë, H. Turner, H. Selfe Leonard, H. J. Jones, E. Mawley, and G. Gordon.

Messrs. John Laing & Sons, Forest Hill, exhibited a large and varied collection of hardy flowers, all of which were fine and in an excellent condition of freshness. Amongst numbers of others were noticed Pæonies in good variety, Phlox ovata, Geum chilense, Centaureas montana alba and montana rubra, Gaillardia grandiflora, Campanulas persicifolia alba and persicifolia grandiflora, Erigerons glaucum and philadelphicum, Achillea macrophylla, Epilobium angustifolium, Betonica grandiflora, Veronica carnea, Doronicum austriacum, Stenactis speciosa, Anchusa italica, Polygonum affine, Heuchera sanguinea, Papaver nudicaule, together with Lupins and Irises in variety (silver Banksian medal).

A bright collection of old-fashioned and garden Roses was staged by Messrs. Geo. Cooling & Sons, Bath. The exhibit included numerous varieties of these charming flowers, and amongst many others were noticed Persian Yellow, Charles Lawson, Polyantha grandiflora, Rosa polyantha, Rosa Mundi, Sweet Briar, Janet's Pride, Copper Austrian Briar, Miniature, Yellow Austrian Briar, Harrisoni, W. A. Richardson, White Scotch Briar, Rosa viridiflora, Moss Rose Little Gem, Rosa rugosa alba, Laurette, and Sweet Briar Lord Penzance. The firm also staged a stand of the beautiful new Hybrid Perpetual Lawrence Allen (silver Banksian medal). Messrs. Kelway & Son, Langport, staged a huge collection of Pæonies, Delphiniums, and Pyrethrums. The exhibit occupied a large expanse of staging, and produced a very showy effect. Conspicuous amongst the former were Pansies Torquemada, Donald Grant, Langport Queen, Olivia, Tory Leader, Lady Beresford, Duke of Devonshire, Peach Blossom, Duke of Cambridge,

Sir Visto, and Rev. W. Wilks. Amongst the Delphiniums Beauty of Langport, King Olaf, Miles Standish, Cambridge, Election, Miss McIntyre, Susan, Geneva, and Prince Henry were exceedingly fine. Pyrethrums were well represented in varieties, Wega, Ernest, Carl Voget, Melton, Figaro, Princess Maria, James Kelway, Ruth, Pericles, and others (silver Flora medal).

A group of well-flowered plants in pots of Carnation Yellow Queen came from Mr. T. Bones, Heaton Gardens, Cheshunt. Mr. Frank Cant, Colchester, staged a small collection of Roses, which included two fine new varieties, Medea and Sappho, together with blooms of Austrian Yellow, Rainbow, Mignonette, Janet's Pride, L'Idéal, Rugosa alba, Braiswick Beauty, Dundee Rambler, Perle d'Or, Austrian Copper, and Blanche Moreau. Messrs. Paul & Son, Cheshunt, sent a fine collection of hardy flowers, in which Pæonies in variety were very effective, as also were flowers of *Campanulas muralis* and *mollis*, *Phloxes pilosa* and *Andre*, *Pyrethrums* Captain Nares and *Le Dante*, *Inula glandulosa*, *Dianthus cruentus*, *Irises spuria* and *orientalis*, *Weigela rosea*, *W. alba*, and *W. candida*; *Roses*, Sweet Briar Janet's Pride, Paul's Carmine Pillar, Austrian Copper, *Rosa rugosa alba*, and *Rosa rugosa fimbriata* (silver Banksian medal).

A fine group of Cannas and Gloxinias came from Messrs. H. Cannell and Sons, Swanley, Kent. Amongst the former were Madame Crozy, Queen Charlotte, Golden Queen, Aureole, and others; and conspicuous in the latter were Miss D. Dean, Beacon, Princess of Wales, Spotted Gem, Miss M. Pearson, Mrs. Lovelace, Miss Tudor, Purity, Mr. E. Cannell, Model, and Prince of Wales (silver Banksian medal). Mr. J. Douglas, Great Bookham, Surrey, sent fine Carnation blooms, namely, Duke of Orleans, Miss Audrey Campbell, Corunna, Phyllis, and forcing Pink Snowflake.

Messrs. James Veitch & Sons, Chelsea, staged a magnificent collection of hardy flowers, comprised chiefly of *Eremurus robustus*; *Pæonies* Reine Hortense, Emile Lemoine, *Purpurea superba*, Constance Devret, Whitleyi, Aurora, and *Humea carnea*; *Campanula glomerata dahurica*, *Phlox ovata*, *Heuchera sanguinea*, *Inula glandulosa*, *Lychnis viscaria splendens plena*, *Veronica teucrium* and *Erigeron aurantiacus*. The same firm also sent well flowered plants of *Lilium Alkeyuri*, and *Robinia hispida*, together with a good collection of hybrid *Streptocarpus*, and a few brilliant Gloxinias, namely, Elvira, Columbus, Olivette, Cicely and La Belle (silver Flora medal).

Messrs. R. Wallace & Co., Colchester, sent hardy flowers, amongst which Irises were conspicuous. Amongst others were noticed Irises Asiatica, Mrs. H. Darwin, Variegata chelles, *Siberica compacta*, *Siberica* George Wallace, and many others. Included in the group were flowers of *Calochortus Lyoni*, *C. pulchellus*, *C. albus*, and *C. amoenus*, *Lilium longiflorum giganteum*, *L. japonicum colchesteriana*, and others (silver Banksian medal).

Mr. Thos. S. Ware, Tottenham, was represented by an exceedingly large and varied exhibit. Carnations in pots claimed attention, amongst which were Lady Wantage, Orange Beauty, and The Shahzada. Conspicuous amongst the hardy flowers were *Senecio Doronicum*, *Campanula turbinata*, *Lilium colchicum*, *Lilium Martagon album*, *Inula glandulosa*, *Armeria cephalotes alba*, *Spiræa filipendula plena*, *Campanula persicifolia Backhousei*, *Papaver Prince of Orange*, and *Saxifraga pyramidalis* (silver-gilt Banksian medal).

Mr. Charles Turner, Slough, sent blooms of the fine Carnation Mrs. W. H. Grenfell. M. Louis de Smet, Ghent, staged specimens of variegated *Abutilon Sawitzi*. Mr. H. B. May, Upper Edmonton, sent plants of yellow *Tropeolum Coolgardie*. Messrs. Wm. Paul & Son, Waltham Cross, staged a small, though good, collection of Rose blooms, comprised of Sylph, Mungo Park, and Zephyr. A good group of hardy flowers came from Mr. M. Pritchard, Christchurch, Hants. Amongst numerous others were noted *Linaria dalmatica*, *Veronica buxifolia*, *Dianthus sylvestris*, *Inula glandulosa*, *Gaillardia maxima*, *Heuchera sanguinea*, *Betonica grandiflora*, *Geum miniatum*, *Delphinium Gaiety*, together with *Pæonies* in variety, Iceland Poppies, and many others (bronze Banksian medal).

Mr. Blick, gardener to Martin R. Smith, Esq., The Warren, Hayes, Kent, sent well-grown plants of *Malmaison* Carnation Lady Grimston. The blooms were exceedingly fine, while the scent of this charming variety leaves little to be desired. Messrs. Barr & Son, Covent Garden, staged an excellent collection of *Pæonies* of great variety in colour. The flowers were good, and consisted chiefly of Victor Hugo, Lady Dartmouth, Grandiflora, Superba, Grace Darling, Helen Leslie, Madame Vilmorin, Monsieur Andre, Curiosa, Solfaterre, Rose Dawn, Agnes Barr, W. Marshall, Fairy Queen, Lady Somerset, Sir Walter Scott, Festiva, Maxima, Queen of May, Alexandre Dumas, Figaro. Dr. Bois Duval, Surprise, Duke of Wellington, Amabilis, Madame Henri, and others. Other hardy flowers were included in the group, and the whole produced an imposing effect (silver Flora medal).

Mr. B. R. Davies, Yeovil Nurseries, Yeovil, Somerset, staged a small but excellent collection of double Begonias, composed of varieties Mont Blanc, B. R. Davies, Britannia, Lucerne, Sir Visto, Mrs. Bennett, Miss Falconer, and several others. Mr. Anthony Waterer, Woking, staged a group of cut *Rhododendron* blooms, and flowers of *Weigela Eva Rathke*. Mr. Thomas Whillans, Blenheim, Woodstock, sent plants of seedling Carnation Blenheim Beauty, the flowers are very large, but entirely devoid of scent. Mr. B. Campbell, The Willows, Windsor, sent a splendidly bloomed plant of *Bougainvillea glabra* trained in balloon shape.

Mr. Bain, gardener to Sir Trevor Lawrence, Burford Lodge, Dorking, showed a well flowered plant of *Blandfordia aurea*, and fine blooms of Stock Mammoth White. Mr. Downes, gardener to J. T. Bennett Poë,

Esq., Cheshunt, staged a large specimen plant of *Carpenteria californica*, thickly covered with its snowy white blossoms (silver Banksian medal).

Mr. George Mount, Canterbury, and Mr. George Prince, Oxford, staged good collections of Rose blooms, for which medals were awarded. Messrs. Hugh Low & Co., Clapton, sent a small collection of *Caladiums*.

Three Veitchian Memorial medals for services rendered to horticulture were presented to James Bateman, Esq., F. W. Moore, Esq., and Mons. V. Lemoine, by Sir Trevor Lawrence, Bart. The President of the Society, in making the presentation, spoke in highly eulogistic terms of the services rendered to the horticultural fraternity by the above gentlemen. The two former recipients thanked the Chairman in a few well chosen words, and in the absence of the latter the medal was received and suitably acknowledged on his behalf by H. J. Veitch, Esq.

ORCHID COMMITTEE.—H. J. Veitch, Esq. (in the chair); and Dr. Masters, with Messrs. J. O'Brien, J. Douglas, S. Courtauld, Major Mason, W. Cobb, E. Hill, T. Statter, W. H. Protheroe, H. J. Chapman, W. H. White, H. Williams, J. T. Gabriel, F. W. Moore, H. M. Pollett, H. Ballantine, T. B. Haywood, and De Barri Crawshaw.

The Orchid section of the show was not very extensive in point of numbers, but the quality throughout was exceptionally high. Messrs. W. L. Lewis & Co., Southgate, staged a very charming exhibit, comprising *Odontoglossum crispum* in variety, *Cattleyas gigas*, *Mossiae*, *Mendeli*, *Dendrobium Falconeri*, *Cypripediums* in variety, and *Odontoglossum citrosum*. All these plants were well grown, and the flowers produced a very bright display (silver Banksian medal). Mr. Downes, gardener to J. T. Bennett Poë, Esq., Cheshunt, staged a magnificently flowered plant of *Cypripedium caudatum* Wallisi.

From Messrs. Hugh Low & Co., Clapton, came a grand show of Orchids, in which *Cattleya Mossiae* in variety were very conspicuous. In addition to these *Cypripedium Curtisi viride*, *C. bellatulum*, *Odontoglossum vexillarium*, a superb *Lælio-Cattleya* called Ingrami, and several others were noticed (silver Flora medal). Mr. W. H. Young, gardener to Sir F. Wigan, Clare Lawn, East Sheen, staged half a dozen Orchids of excellent quality. Perhaps the best of these was *Cypripedium bellatulum album*, but *C. Aylingi*, *C. Stonei candidum*, and *C. Phædra* were all superb. A flower spike of *Lælia grandis*, Wigan's variety, and another of *L. purpurata*, Richmond Gem, also attracted a great amount of attention. The plants shown by this exhibitor were in the best of health.

Masdevallias were arranged by Mr. H. J. Chapman, gardener to R. I. Measures, Esq., Camberwell. Amongst them were observed *Wagneri*, *muscosa*, *Ellisiana*, *falcata*, *Stella*, *Schlimi*, *campyloglossa*, *calura*, and *Harryana*, The Comet. The same exhibitor showed a plant of *Cypripedium leucobulum aureum* (silver Flora medal).

A very showy and interesting group was staged by Messrs. J. Veitch and Sons, Royal Exotic Nursery, Chelsea. The flowers in this stand were exceptionally rich in colour and of fine size. Numerous kinds were represented, including *Cattleya Warscewiczii*, *C. Mossiae*, *Lælio-Cattleya Canhamiana*, *L.-C. Arnoldiana*, *Lælia purpurata*, *L. tenebrosa*, *Cypripedium superciliale*, *C. superbiens*, *C. selligerum majus*, *C. Stonei*, *C. orphanum*, *C. Curtisi*, *Odontoglossum crispum*, *O. cordatum*, *O. Pescatorei*, *Cirrhopetalum robustum*, *Disa langleyensis*, *D. Veitchi*, *Oncidium macranthum*, *Angræcum falcatum*, and many others (silver-gilt Flora medal).

Messrs. B. S. Williams & Son's exhibit of Orchids, interspersed with foliage and flowering plants, was small, but very attractive. *Dendrobiums*, *Cypripediums*, *Cattleyas*, *Epidendrum vitellinum majus*, and others were admirably represented (silver Banksian medal). Mr. W. White, grower to Sir Trevor Lawrence, Dorking, sent a few plants of the best quality. The exhibit was composed of *Thunia Bensoniae*, *Cypripedium Eleanor*, *Odontoglossum cordatum aureum*, *Bulbophyllum callosum*, *Masdevallias Stella*, *Gairiana*, *Gargantua*, a superb *Odontoglossum crispum*, *Dendrobium suavisimum*, *D. Schröderæ*, *Amesiana*, and others.

The largest exhibit of Orchids came from Messrs. F. Sander & Co., St. Albans. The most conspicuous were *Odontoglossum vexillarium*, *F. W. Moore*, and others; *Lælia tenebrosa*, *Epidendrum vitellinum majus*, *Dendrobium Johnstonei*, *Lælio-Cattleya Aylingi*, *Sobralia Veitchi rosea*, *S. Keinastiana*, *Angræcum Fournierianum*, *Cypripedium Mons. A. de Laresse*, a hybrid between *Curtisi* and *Rothschildianum*; *C. Frau Ida Brandt*, a cross between *Io grande* and *Youngianum*; *Phaius Owenianus*, *Lælia Lucasi*, and several others (silver-gilt Flora medal).

A group of Orchids was shown by Mr. Masterton, gardener to Welbore S. Ellis, Esq., Dorking, composed chiefly of varieties of *Odontoglossum crispum*, besides several others. Messrs. Charlesworth & Co. sent a few Orchids, including *Lælia tenebrosa*, *Oncidium macranthum*, and others (silver Banksian medal). E. H. Woodall, Esq., Scarborough, received an award of merit for *Renanthera Imschootiana*. Mr. R. Johnson, gardener to T. Statter, Esq., Manchester, receiving a first-class certificate for *Cattleya superba alba*. De Barri Crawshaw, Esq., Sevenoaks, showed a few very fine Orchids, amongst which were *Cattleyas*, *Odontoglossums*, and *Lælias* in grand form (silver Banksian medal).

Very bright and beautiful were the Orchids exhibited by J. Gurney Fowler, Esq., South Woodford, and which included some splendidly grown plants and large, substantial flowers (silver Flora medal). H. T. Pitt, Esq., Stamford Hill, also showed a most praiseworthy group of Orchids of various kinds (silver Banksian medal). Mr. J. Hamilton, gardener to H. Bass, Esq., Burton-on-Trent, staged plants of *Cattleya gigas Sanderæ*, a grand form of the type (silver Banksian medal).

CERTIFICATES AND AWARDS OF MERIT.

Begonia B. R. Davis (B. R. Davis).—This is a deep crimson coloured, double form of fine quality (award of merit).

Begonia Lucerne (B. R. Davis).—This variety has curiously coloured blooms, there being a mixture of orange, rose, white, and pink. It is a double variety (award of merit).

Begonia Mont Blanc (B. R. Davis).—A handsome, perfectly double white variety (award of merit).

Bentinckia nicobarica (F. Sander & Co.).—This is a new Palm from Central Asia, with broad pale green leaves. The habit is that of a *Kentia* (first-class certificate).

Blandfordia aurea (W. Bain).—The plant of this *Blandfordia* was very finely grown, and carrying large numbers of yellow flowers (first-class certificate).

Calochortus Lyoni (R. Wallace & Co.).—This is a charming variety, with large white flowers, slightly tinged with lilac (award of merit).

Carnation Corunna (J. Douglas).—This is a fine yellow self variety with well-shaped flowers, which have no appearance of splitting in the calyx (award of merit).

Cattleya gigas Sanderæ (J. Hamilton).—This is a superb variety, with bright rose sepals and petals and a broad lip of the richest maroon. The throat is yellow, veined brown. It was one of the finest Orchids staged (first-class certificate).

Cattleya superba alba (R. Johnson).—This is a pure white form of the type. The lip has a charming yellow blotch in the centre (first-class certificate).

Cirrhopetalum robustum (J. Veitch & Sons).—This is an uncommon Orchid, with greenish yellow flowers (first-class certificate).

Cypripedium bellatulum album (W. H. Young).—This is an exceptionally handsome Orchid of splendid shape. As the name infers, the flowers are pure white. The woodcut (fig. 93, page 513), sketched at the Drill Hall, portrays the form of the flower (first-class certificate).

Cypripedium Frau Ida Brandt (F. Sander & Co.).—This is a very handsome hybrid obtained from a cross between *Io grande* and *Youngianum*, the former being the seed-bearing parent. The flower is very large, and the dorsal sepal of fine size, the ground colour being white flushed rosy purple and green. The petals are rosy purple with chocolate spots. The pouch is pale reddish brown (award of merit).

Cypripedium Eleanor (W. H. White).—The dorsal sepal of this hybrid is white flushed rose, the pouch dull chocolate brown, and the petals rosy purple heavily blotched with brown (award of merit).

Cyrtanthus obliquus (F. Sander & Co.).—This bulbous plant has flowers of the *Blandfordia* style. The colour is orange red shading to yellow, with green tips (first-class certificate).

Delphinium Beauty of Langport (Kelway & Son).—This is a fine variety with a medium sized spike, and flowers creamy white with petals tinged with sulphur (award of merit).

Inula Hookeri (Paul & Son).—The flowers of this *Inula* are not very large, but the colour is a very rich yellow (award of merit).

Iris asiatica (R. Wallace & Co.).—This is a fine *Iris*, of free and robust habit. The flowers are large and borne in great profusion, with blue standards and violet blue falls (award of merit).

Lælia grandis, *Wigan's variety* (W. H. Young).—The type of this is well known, and the variety noted has sepals and petals of the same colour. The lip is dull white with deep red marking (award of merit).

Lælia purpurata Richmond Gem (W. H. Young).—This is a very handsome variety with white sepals and petals. The lip is, however, the best feature. The outer portion is rich velvety crimson with a paler patch at the edge, and a pale yellow throat with crimson veins (award of merit).

Pæony Duke of Devonshire (Kelway & Son).—A large double variety of deep rose colour, with outer guard petals and dense centre (award of merit).

Pæony Lady Beresford (Kelway & Son).—An immense semi-double flower of blush pink colour (award of merit).

Pæony Solfaterre (Barr & Son).—A large flower, creamy white in colour, the outside guard petals being pure white (award of merit).

Renanthera Imschootiana (E. H. Woodall).—This is a fine Orchid with dull red coloured flowers (award of merit).

Rose Lawrence Allen (George Cooling & Co.).—A good Hybrid Perpetual, having fine well formed flowers of colour rosy pink and sweet scented (award of merit).

Rosa rugosa, *Blanche Double de Coubert* (Paul & Son).—This is a splendid double white form of *R. rugosa* (award of merit).

Streptocarpus Distinction (J. Laing & Sons).—The flowers of this *Streptocarpus* are large in size and of a bright blue colour, the lower portions of the bloom being blotched with deep violet (award of merit).

Thunia Veitchi grandiflora (F. Sander & Co.).—This form of the well-known type is large, but the colour of the lip is much brighter and more intense (award of merit).

SKIMMIA FRAGRANS.

THE *Skimmias* (fig. 95) are better known and more valued for their brightly coloured berries than for their flowers, yet though these are unattractive they possess one property—fragrance—that renders the plant a favourite in some establishments. The rich green foliage of the *Skimmias* is always an attraction; then we have their flowering period, and later on a rich display of fruits, so that they can be fairly considered as useful in a more than ordinary degree.

HALE FARM NURSERIES.

LOVERS of hardy flowers will always find abundance to interest them at these nurseries, and despite their proximity to the smoke of London, the display just now is very brilliant. Not so much so, perhaps, as has been the case in many former years, and will be again in future seasons, as two enemies have had to be contended against, not coming concurrently, but following each other in immediate succession. The former of these was the terrible frost, and the latter the persistent dry weather, accompanied by bright sunshine and parching winds. The effects of these combined are plainly apparent on some plants, but the ill effects have not been sufficient to destroy all the beauty, all the colour, and all the diversity. Considering, however, that upwards of 40 acres are here devoted to hardy flowers, one would be surprised indeed was there not always a number of handsome hardy plants to be seen in bloom from the early spring months onwards through the year.

During the past few years there has been a kind of revival in favour



FIG. 95.—SKIMMIA FRAGRANS.

of this class of plants, and to create, meet, and increase this demand Mr. T. S. Ware has always been in earnest. Nothing can be said against this growing popularity, as hardy plants not only provide an extraordinary diversity of colouration, an extremely varied range of form, but are also adapted for culture in all gardens from the smallest to the largest, and indeed in almost all they are found represented in some form or another. The amateur in London, or any other large manufacturing town, may find amongst hardy perennials plants that will grow and flower year after year, apparently little, if any, the worse for their smoky environs. For cutting purposes many of them are unequalled, lending themselves as they do so admirably to tasteful arrangement, and lasting so well when placed in water. Other attributes in their favour could be mentioned, but sufficient have been put forward to render permissible the title of Flowers for the Million. Not that everyone can have such a display as is provided at Tottenham. This of course is not possible, but by a judicious selection flowers can be had over a very long period of time that will afford a never failing source of pleasure to the owner, whether the number is limited to a dozen or runs into the hundreds.

One could, with ease, form a collection to comprise scores or hundreds of kinds and varieties, but when to be limited to a dozen or so the task would be nothing short of formidable. The reason of this has not to be sought for, as it simply consists in the plethora of beauty. One sees a plant that must be had here, another there, and so on until the dozen is passed, and rapidly extending to or exceeding the score. In the formation of a garden of perennials several things have to be

considered as important, such, for example, as the shape of the garden, the situation, the manner in which it is laid out, the principal object for which the plants are to be grown—whether for cutting or otherwise—and last, but not least, the amount of money at disposal. In this latter respect, at any rate, hardy perennials are certainly unrivalled, as they can be had to suit all purses; indeed, they can readily be adapted for each of the purposes enumerated. With the idea of seeing what is now in flower a journey was made to these nurseries, and notes of a few out of the many attractive flowers are subjoined. The selection made is good from the writer's point of view, but not necessarily the best. Individual taste must play an important part in looking at hardy flowers, and it would be little short of arrogance for one to say, "These are absolutely the best that can be procured," as it is practically certain that the next person would make a different choice, and would have an equal right to use the same expression if he felt so disposed.

The stately beauty of the *Eremuri* must be the excuse, if such be needed, for placing these in the foremost position in the notes. To extol their beauties and their merits requires the pen of an expert, and readers who desire more information will do well to read the admirable article dealing with them that appeared in the *Journal of Horticulture* for February 26th, over the well-known signature of "S. Arnott." There they were dealt with fully, as they deserve to be; here they can only be accorded a brief paragraph. They are amongst the most handsome of the hardy perennials, but their beauty is not such as would appeal to everyone, and perhaps this is as well, for they are scarcely the sort of plant one would recommend for the garden of very limited extent. The enormous spikes rise to a height of several feet, the flowering portion of such sorts as *robustus*, which was "held up" by Mr. Page Roberts in the *Journal* for September 20th, 1894, and *himalaicus* being upwards of 3 feet in length. Quite as good as the two already named is *Aitchinsoni*, which has yellow flowers shaded with buff, while others worthy of mention are *Elwesi* and *Bungayi*. It is unfortunate that these plants are not more extensively grown, as when seen in good condition their ornate beauty commands admiration from everyone.

Passing naturally from the long to the short we have the charming *Veronica rupestris*, which in large clumps is a perfect sheet of blue. This is a well-known and highly appreciated little plant, but it is worthy of mention here, and of more extended culture in small gardens. Equally attractive, and as general a favourite, is *Heuchera sanguinea*, which seen at a distance of a few yards, with the sun glistening on it, is at once a striking and a singularly beautiful sight. It is an exceedingly useful plant for cutting, providing red flowers of a distinct shade and form. *Achillea millefolium* is a plant too seldom grown, and as seen at Tottenham one of the most beautiful on the place. A large bed was noticed, in which the plants were smothered with their pearly white blossoms, that are valuable for cutting purposes. This is a plant that almost anyone would place in a prominent situation, despite which it is seldom seen. Perhaps some reader can suggest the reason for this. A dwarf *Aster* next attracts attention by its mauve-coloured flowers, produced on a plant only a few inches high. It is called *A. alpinus*, of which there is a very beautiful variety named *speciosus*, with larger and more richly coloured flowers. Both of these plants possess several good points that will insure them a goodly number of admirers.

For brilliance the Poppies are unrivalled, and many sorts are well worth growing. Foremost amongst them must be placed *Papaver bracteatum*, probably the finest of the oriental varieties. Everyone knows the massive, richly hued flowers with the dark blotch at the base of each petal, and there are not many people who do not admire them. Other handsome varieties are *Silver Queen*, *Royal Scarlet*, and *Little Prince*, each of which possesses undoubted merits. In addition to these there were the dwarf growing *P. miniatum* and the Iceland Poppies, both very charming and useful for cutting. *Aquilegias* have not made the growth that is usually one of their characteristics here, doubtless owing to the very dry weather, but the plants are smothered with flowers. Hybrids are numerous, while the well-known *Skinneri*, *californica*, and *chrysantha* are seen in profusion. Beyond these are *Inulas glandulosa* and *grandiflora*, each distinct from the other. Of the two perhaps the latter is preferable. Two other plants not seen so frequently as their merits deserve are *Lathyrus Sibthorpi* and *Orobancha lathyroides*, both, of course, belonging to the pod-bearers. Boldly conspicuous was a clump of *Spiraea aruncus*, about 8 feet high and as far through.

The collection of *Nymphæas* is very extensive, though at the present time there are not many kinds in flower. Amongst those noticed *N. Laydekeri rosea*, *N. candida*, and *N. odorata rosea* were perhaps the best. These plants are grown in tubs plunged into the ground close to the large rockery, and greatly enhance the appearance thereof. In a frame adjacent to this rockery there is a number of *Brodiaeas* thriving in a most satisfactory manner. It is curious that these plants are not more extensively grown, but possibly they are not sufficiently showy for the generality of plant growers, though they cannot fail to add interest to the garden. *Brodiaea coccinea* and *congesta* are perhaps the best known, but *Howelli* ought to be grown, as it is quite distinct, and possessed of many good points. The climbing *B. volubilis* was also seen, but is not apparently of any particular merit. In the same frame large numbers of *Sparaxis* are growing and flowering, besides numerous other plants not at present in bloom. Irises are almost over, there still remaining, however, a few to bloom. The collection of these is very large, and the display when hundreds were in flower must have been very fine indeed. *Phlox ovata*, *Veratrum album*, *Dictamnus Fraxinella* (the Burning Bush), *Geranium ibericum*, and *Hemerocallis Damorteri*, all add beauty and diversity to this floral feast.

Justice cannot be done in such brief notes as these, but they must not be concluded without a reference to the thousands of *Liliums* that are cultivated, and which are not yet of course in their full beauty. Comprised in this collection are probably all the best kinds in commerce, and it cannot be doubted that in a short time when the plants are in full flower the sight will be a truly glorious one. Of those now in bloom *Szovitzianum* and *canadense* are the most prominent, and indeed look very charming. Every day fresh beauties will be apparent in the newly opening blossoms, and visits at frequent intervals could not fail to be of interest and also prove very instructive. Deserving of congratulation are the firm and its grower, Mr. Johnson, for the efforts they have made and are making to popularise these plants, and for the good health of the stock, that prevails over the establishment.—NOMAD.



ROSE SHOW FIXTURES FOR 1895.

- June 19th (Wednesday).—York.*
 " 20th (Thursday).—Colchester and Ryde.
 " 25th (Tuesday).—Isle of Wight (Cowes).
 " 26th (Wednesday).—Richmond (Surrey).
 " 27th (Thursday).—Gloucester (N.R.S.) and Canterbury.
 " 28th (Friday).—Exeter.
 " 29th (Saturday).—Windsor.
 July 2nd (Tuesday).—Diss, Maidstone, and Sutton.
 " 3rd (Wednesday).—Brockham, Croydon, Ealing, Farnham, Lee,† and Sittingbourne.
 " 4th (Thursday).—Eltham and Norwich.
 " 6th (Saturday).—Crystal Palace (N.R.S.).
 " 9th (Tuesday).—Ipswich, Westminster (R.H.S.), and Wolverhampton.*
 " 10th (Wednesday).—Chelmsford, Farnham, Hitchin, and Redhill (Reigate).
 " 11th (Thursday).—Bath, Great Malvern (Hereford Rose Society), Helensburgh, Woodbridge, and Worksop.
 " 17th (Wednesday).—Derby (N.R.S.).
 " 18th (Thursday).—Canterbury (Kent Hospital Fête) and Halifax.
 " 20th (Saturday).—Manchester.
 " 23rd (Tuesday).—Tibshelf.
 " 24th (Wednesday).—Chesterfield and Newcastle-on-Tyne.*
 " 25th (Thursday).—Trentham.
 Aug. 3rd (Saturday) and 5th.—Liverpool.†

* A show lasting three days. † A show lasting two days.

I shall be glad to receive the dates of other Rose shows than those named above for publication in future lists.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

WINDSOR SHOW.

THE Committee of the Windsor Rose Society are anxious to make the fact known that the show on the 29th inst. is to be held in the private grounds of Windsor Castle, by special permission of Her Majesty. The Court will be at Windsor at the time, so the show may possibly be visited by Royalty.

ROSE MARÉCHAL NIEL UNDER GLASS.

HAD I questioned the soundness of "W. R. Raillem's" system of growing this Rose there may have been some reason for Mr. Divers' oracular statement in last week's issue; as I did not it calls for no comment, and I can only condole with Mr. Divers on his want of success with grafted plants. I have not infrequently had growths 20 feet from the grafts in one season, so that the objection on the score of weakly growth can hardly be maintained.—H. R. R.

ROSES UNDER GLASS.

AT a meeting of the Royal Horticultural Society held at the Drill Hall, Westminster, on Tuesday last, an exhaustive and instructive paper on "Rose Culture Under Glass" was read by Mr. Frank Cant, the well-known grower of Colchester. The essayist in his opening remarks said that several books had been published on the cultivation of Roses, but he considered the Rev. A. Foster-Melliar's "Book of the Rose" was one of the best, and one he could safely recommend to all who contemplated growing these charming flowers. Considering the popularity of Roses, and the ease with which they may be grown under glass, their culture under these conditions was not carried on so extensively as might be expected.

He commenced by describing the kind of house required for them, and stated that though Roses can be and are grown in all kinds of structures, a light span-roofed house, with ends facing north and south, is the one most suitable, with side and top ventilators fitted to open the entire length. The house should be of sufficient width to allow for a bed in the centre, with a path round it, and a border on each side. The Roses may either be grown in pots or planted out, but in case of the latter the roof of the house should be so formed that it can be lifted off, this

being done about the middle of June. The beds may be planted with standard and half-standard Teas and Hybrid Perpetuals, while on the roof and supporting pillars should be trained climbers, but these must not be allowed to become so dense as to obstruct the light.

Though ample ventilation is essential it can be overdone, therefore great care is necessary on this point. If it is thought desirable to plant the Roses out, this should be effected in November, allowing ample ventilation for two or three weeks, only closing to exclude frost. The plants should be pruned in January, and a warm, humid atmosphere maintained until flowering commences. For growing in pots plants dug from the open ground are not satisfactory the first year; it is therefore necessary that they should be subject to pot culture at least twelve months before they are required for forcing. Presuming a stock has been raised, the plants should be overhauled and the roots examined thoroughly in September. If these are in good condition potting will not be necessary, a good top-dressing sufficing. In either case the compost should consist of good fibrous loam from an old pasture which has been stacked for at least six months, this to be chopped fine and a little coarse sand added.

Water must not be given too liberally directly after potting, and if the plants be protected out of doors till the middle of December, they may then be removed to the house. Pruning should be done about a fortnight after this, and if the flowers are not required before April no artificial heat will yet be necessary. After January the plants commence growing, when each morning the pots, paths, and walls should be well syringed. Soon the flower buds will appear, and the grower's efforts be amply rewarded by abundance of flowers.

No hard and fast rules can be laid down with regard to watering, but great care is necessary, as oversupplies produce mildew, which is one of the worst pests to which Roses are subject. It may be avoided by judicious watering, but in case of its appearance the best means of eradication is to make the water-pipes hot and then paint them with a mixture of flowers of sulphur and milk. During the months of March, April, and May the syringe should be freely used, as red spider will appear if the atmosphere be kept too dry. Green fly is sure to present itself, and may be kept in check by frequent use of the syringe; if, however, it makes headway, the best means of extermination is fumigating, which should be done on a still evening after sunset, syringing the plants thoroughly next morning.

With regard to stimulants, liquid manure from the cowyard is doubtless the best, and may be applied in a diluted state twice a week, failing that clear soot water is a good substitute, liquid from the horse stable being dangerous. If evaporating pans are provided on the water pipes it is a good plan to fill these with some ammoniacal liquid manure, as this strengthens the foliage. Roses when in bloom are benefited by being shaded with roller blinds, which ought to be green, and not too thick or heavy. After the flowering season is over the plants should be plunged in ashes outdoors, the surface of the pots be covered with some rough hotbed material, and all flower buds kept removed until September.

In conclusion Mr. Cant said that many people were of the opinion that Tea and Hybrid Perpetual Roses could not be grown satisfactorily in the same house, but he had experienced no such difficulties, both being perfectly at home. Rose-growing under glass, he said, is a most interesting occupation, as they are there free from the atmospheric drawbacks which often affect them out of doors. At the close of the lecture a hearty vote of thanks was accorded to Mr. Cant for his interesting paper.

RED SPIDER ON VINES.

THIS pest on Vines is, I think, the worst of all, and when once established on the green leaves nothing will move them except the sponge. I have experienced bad cases of the red spider, and have sponged whole houses of Vines, but even after that the Vines have appeared checked, caused, I believe, by the rubbing of the leaves, closing many of the pores, and interrupting the leaves breathing or feeding on the atmosphere.

Some growers recommend the use of soft water from the syringe. That I have tried, but at the expense of getting marked berries, and without the rich bloom we like to see on the exhibition table. I do not attribute much value to the spider harbouring under the bark of Vines, as I conclude that if the state of the Vines and the condition of vineries are suitable for the pest it will reach there, notwithstanding the extreme means that have been taken in cleansing house and Vines. In my opinion, spider travels in the air, and lodges in any suitable place. Take for instance Beans. Fill a house, and have in no other plants. Place some near the hot-water pipes, fairly well heated, and the atmosphere rather dry; spider will appear on them in a very short time. Another instance which came under my notice last season. In my early Hamburgh house I forced Strawberries, and when just ripening I was surprised to find them covered with spider, and the Vine leaves nearly touching them. I quickly removed the Strawberries to other quarters, and on examination I found none on the Vines, but for prevention I dusted the shelf with flowers of sulphur.

I do not think the flowers of sulphur had all to do in keeping them clear. I believe over-cropping, which means stagnation to growth; borders allowed to become too dry, damping down not regularly done, over-heating of hot-water pipes all breed red spider. I use liquid manure from the farmyard, putting a little in the vapouring troughs as a preventive of red spider.—W. COATES, *Darnhall Hall*.

ROYAL NATIONAL TULIP SOCIETY.

THE annual northern exhibition of this Society was held on Tuesday, June 4th, in the Free Library, Middleton, near Manchester. The library, which was kindly lent free of charge by the Corporation, with its good accommodation and interesting surroundings, made an ideal exhibition place; and the growers, who came in good numbers from far and near, were delighted with their visit to the town. The people of Middleton, from the Mayor and the Rector downward, did their best to make the visit a pleasant one to the members of the Tulip Society, and it is most likely that the show will next year again be held at Middleton.

The month of May this year has been a trying one to the Tulip grower. During the early portion Tulips were later than usual, and cold rough east winds prevailed; then came a milder period, and the blooms began to develop quickly, but on the 14th strong rough north to north-west winds prevailed for a week, and progress was all but stopped. On the 21st it appeared as if the date chosen for the show would be just right; but blazing tropical weather set in, with the result that the flowers had but a short life of it, and were literally roasted on the beds. From this cause scarcely a grower could show his full strength, and those from early districts had not a single flower to bring. Notwithstanding these adverse circumstances there was a very good display of Tulips both in numbers and quality, the show of feathered flowers being far above the average. Breeders were not in good order, having suffered severely from the hot weather.

The Judges, Messrs. Housley and Booth (Stockport), Woodhead (Staleybridge), and Keyzey (Gorton), commenced their labours at eleven o'clock, and it was shortly afterwards known that the silver cup for the best stand of twelve rectified flowers, which is the "blue ribbon" of the exhibition, had been won by Mr. James W. Bentley of Stake Hill House, near Middleton, whose success was locally very popular, and that Mr. Charles W. Needham was second. As the judging proceeded it became apparent that the local growers were getting the principal prizes, their flowers being, generally speaking, in the better condition. The Rev. F. D. Horner, President of the Society, who had managed to save about half a dozen blooms, took the first prize for "pairs" with two fine flowers, which gave the growers an idea of what he could have done had he been able to come in strength. Messrs. Moorhouse, Jones, Dymock, Kitchen, Mellor, and Gill all exhibited some excellent flowers, and all had sad stories to tell of grand flowers ruined by the intense heat.

The usual varieties, such as Sir Joseph Paxton feathered and flamed, Masterpiece, Dr. Hardy, Mabel, Annie McGregor, and Talisman, were shown in good style, although some of the earlier ones, such as Bessie and Chancellor, were almost practically over, and never was the importance of growing some late varieties, such as Queen of the May, Charlemagne, Beauty of Litchurch, Typo, and Nimbus better exemplified. Among little known varieties the following were very good—Albert, feathered bizarre; George Edward, feathered bybloemen; Mrs. Collier, feathered rose; Mrs. Longbottom, flamed bybloemen, shown by Mr. Bentley; and Sarah Ann, feathered rose; Lewis W. Morris, feathered bizarre; and Collier's Seedling, rose breeder, shown by the veteran grower, Mr. John Morris, whose re-appearance as an exhibitor was heartily welcomed. The Rev. F. D. Horner showed some seedling bybloemen breeders of great promise, and the seedling bizarre breeders of the late Mr. Lloyd, shown by Messrs. Bentley and Needham, were very good. After the judging was finished the public were admitted, and the Mayor, Mr. Alderman Thorpe, in an admirable little speech, welcomed the Tulip Society to the town and declared the show open. The growers and friends then adjourned to the old Elizabethan inn, the Boar's Head, for luncheon. The Mayor presided, supported by the members and friends, among whom we saw Messrs. Bennett Poë and Barr of London, Dr. Pegge of Beeston, Notts, and Messrs. Cliff (Leeds), and Barratt (Stockport).

The show was largely patronised by the public, and local horticulturists were interested in competing for extra prizes offered for groups of plants, Pansies, Ferns, and cut blooms, the presence of which among the Tulips greatly improved the show from the ordinary spectator's point of view. The following is a list of the awards.

RECTIFIED TULIPS.

Class 1. *Twelve rectified Tulips, two feathered and two flamed in each class.*—First, Mr. James W. Bentley, Stakehill, Middleton, with Mrs. Atkin and Mrs. Collier, feathered roses; Mabel and Triomphe Royale, flamed roses; George Edward and King of the Universe, feathered bybloemens; Talisman and Queen of the May, flamed bybloemens; Albert and Sir Joseph Paxton, feathered bizarres; Sir Joseph Paxton and Dr. Hardy, flamed bizarres. Second, Mr. Charles W. Needham, Royley, Royton, with Vicar of Radford and Mabel, feathered roses; Mabel and Madame St. Arnaud, flamed roses; Elizabeth Pegg and Nellie Hughes, feathered bybloemens; Charlemagne and Talisman, flamed bybloemens; Masterpiece and Magnum Bonum, feathered bizarres; Sir Joseph Paxton and Dr. Hardy, flamed bizarres. Third, Mr. A. Moorhouse, Wakefield, with Mrs. Lea and Thomas Parker, feathered roses; Madame St. Arnaud and Mabel, flamed roses; George Hardwick and Queen of the May, feathered bybloemens; Queen of the May and Hepworth's Seedling, flamed bybloemens; Sir Joseph Paxton and Masterpiece, feathered bizarres; Sir Joseph Paxton and Dr. Hardy, flamed bizarres. Fourth, Mr. W. Kitchen, Marple, with Heroine and Alice, feathered roses; Heroine and Annie McGregor, flamed roses; Violet Aimable and Violet Lillard, feathered bybloemens; Talisman and King of the Universe, flamed bybloemens; Typo and Sir Joseph Paxton, feathered bizarres; Dr. Hardy and Polyphemus, flamed bizarres. Fifth,

Mr. J. H. Wood, Middleton, with Modesty and Heroine, feathered roses; Mabel and Triomphe Royale, flamed roses; Bessie and Hepworth's Seedling, feathered bybloemens; Talisman and Chancellor, flamed bybloemens; Sir Joseph Paxton and Masterpiece, feathered bizarres; Sir Joseph Paxton and Richard Yates, flamed bizarres.

Class 2. *Six rectified Tulips, one of each class.*—First, Mr. Bentley with Heroine, feathered rose; Annie M'Gregor, flamed rose; Guido, feathered bybloemen; Mrs. Longbottom, flamed bybloemen; Sir Joseph Paxton, feathered bizarre; and Sir Joseph Paxton, flamed bizarre. Second, Mr. Needham with Modesty, feathered rose; Annie M'Gregor, flamed rose; Adonis, feathered bybloemen; Talisman, flamed bybloemen; Sir Joseph Paxton, feathered bizarre; and Sir Joseph Paxton, flamed bizarre. Third, Mr. Moorhouse with Mrs. Lea, feathered rose; Aglaia, flamed rose; George Hardwick, feathered bybloemen; Queen of the May, flamed bybloemen; Hardwick's Seedling, feathered bizarre; and Sir Joseph Paxton, flamed bizarre. Fourth, Mr. Kitchen with Modesty, feathered rose; Madame St. Arnaud, flamed rose; Violet Aimable, feathered bybloemen; John Hart, flamed bybloemen; Sir Joseph Paxton, feathered bizarre; and Dr. Hardy, flamed bizarre. Fifth, Mr. Wood with Modesty, feathered rose; Heroine, flamed rose; Talisman, feathered bybloemen; Nimbus, flamed bybloemen; Sir Joseph Paxton, feathered bizarre; and Sir Joseph Paxton, flamed bizarre. Sixth, Mr. W. Dymock, Stockport, with Julia Farnese, feathered rose, and Seedling, flamed rose; Seedling, feathered bybloemen; Seedling, flamed bybloemen; Lord Lilford, feathered bizarre; and Sir Joseph Paxton, flamed bizarre. Seventh, Mr. W. Mellor, Wakefield, with Mrs. Lea, feathered rose; Annie M'Gregor, flamed rose; George Hardwick, feathered bybloemen; Bessie, flamed bybloemen; Sir Joseph Paxton, feathered bizarre; and Sir Joseph Paxton, flamed bizarre.

Class 3. *Six dissimilar rectified Tulips, one of each class, for small growers only.*—First, Mr. H. Gill, Wakefield, with Mabel, feathered rose; Mabel, flamed rose; George Hardwick, feathered bybloemen, and Queen of the May, flamed bybloemen; Masterpiece, feathered bizarre, and Sir Joseph Paxton, flamed bizarre. Second, Mr. John Morris, Middleton, with Sarah Ann, feathered rose; Mabel, flamed rose; John Hart, feathered bybloemen; Talisman, flamed bybloemen; Catafalque, feathered bizarre; and Sir Joseph Paxton, flamed bizarre.

Class 4. *Three feathered Tulips, one of each class.*—First, Mr. Bentley with Owl, rose; Wm. Bentley, bybloemen; Wm. Wilson, bizarre. Second, Mr. Mellor with Mrs. Lea, rose; Violet Aimable, bybloemen; Masterpiece, bizarre. Third, Mr. Moorhouse with Modesty, rose; May Queen, bybloemen; Sir J. Paxton, bizarre. Fourth, Mr. Wood with Modesty, rose; Alice Grey, bybloemen; Sir J. Paxton, bizarre. Fifth, Mr. Kitchen with Heroine, rose; Violet Aimable, bybloemen; Lord Lilford, bizarre.

Class 5. *Three flamed Tulips, one of each class.*—First, Mr. Bentley with Annie M'Gregor, rose; Talisman, bybloemen; Sir J. Paxton, bizarre. Second, Mr. Morris with Mabel, rose; Lord Denman, bybloemen; Dr. Hardy, bizarre. Third, Mr. Dymock with Seedling, rose; Seedling, bybloemen; Sir J. Paxton, bizarre. Fourth, Mr. Wood with Triomphe Royale, rose; Duchess of Sutherland, bybloemen; Sir J. Paxton, bizarre. Fifth, Mr. Kitchen with Aglaia, rose; Talisman, bybloemen; John Ratcliffe, bizarre. Sixth, Mr. Gill with Mabel, rose; Reliance, bybloemen; Sir J. Paxton, bizarre.

Class 6. *Two Tulips, one feathered and one flamed of any class. Maiden growers only.*—First, Mr. J. H. Wood, Middleton, with Heroine, feathered; and Nimbus, flamed. Second, Mr. Bashforth, Leeds, with Criterion, feathered; and Sir J. Paxton, flamed.

Class 7. *Two Tulips, one feathered and one flamed of any class.*—First, Rev. D. Horner, Burton-in-Lonsdale, with Mrs. Atkin, feathered; and Sir J. Paxton, flamed. Second, Mr. Bentley with Garibaldi, feathered; and Sir J. Paxton, flamed. Third, Mr. Needham with Wm. Annibal, feathered; and Sir J. Paxton, flamed. Fourth, Mr. Wood with Heroine, feathered; and Nimbus, flamed. Fifth, Mr. Morris with Lewis W. Morris, feathered; and Sir J. Paxton, flamed. Sixth, Mr. Kitchen with Sir J. Paxton, feathered; and Aglaia, flamed.

Class 8. *Single blooms, feathered bizarres.*—First, Mr. Bentley with Masterpiece; third, with Lord Stanley; sixth, with Sir J. Paxton; and eighth, with Sir S. Romilly. Second, Mr. Morris with Lord Lilford; seventh, with John Ratcliffe; and tenth, with Sulphur. Fourth, Mr. Jones with Unknown; and fifth, with Charlie Flather. Ninth, Mr. Mellor with Hardwick's Seedling.

Feathered Roses.—First, Mr. Needham with Mrs. Atkin; third, with Comte de Vergennes; and tenth, with Dr. Vernon. Second, Mr. Morris with Sarah Ann; fourth, with Heroine; and seventh, with Mrs. Collier. Fifth, Mr. Horner with Modesty. Sixth, Mr. Bentley with Owl; eighth, with Industry; and ninth, with Madame St. Arnaud.

Feathered Bybloemens.—First, Mr. Jones with Coningsby; and second, with Bertha. Third, Mr. Bentley with Martin's 117; fourth, with Mrs. Jackson; fifth, with Beauty of Litchurch; sixth, with William Parkinson; eighth, with Elizabeth Pegg; and tenth, with Queen of the May. Seventh, Mr. Moorhouse with Hepworth's Seedling. Ninth, Mr. Mellor with George.

Flamed Bizarres.—First, Mr. Bentley with Sir Joseph Paxton; third, with Dr. Hardy; fifth, with Samuel Barlow; sixth, with Orion; and ninth, with Sulphur. Second, Rev. F. D. Horner with Sir Joseph Paxton. Fourth, Mr. Kitchen with Duke of Devonshire; and eighth, with Target. Seventh, Mr. Dymock with Polyphemus. Tenth, Mr. Jones with Wm. Lea.

Flamed Roses.—First and third, Mr. Bentley with Annie McGregor; second, with Madame St. Arnaud; fourth, with Triomphe Royale; fifth and tenth, with Mabel; and seventh, with Martin's Seedling.

Sixth, Mr. Bashforth with Mabel. Eighth, Mr. Kitchen with Queen Anne; and ninth, with Minerva.

Flamed Bybloemens.—First, Mr. Bentley with Mrs. Longbottom; second, with Talisman; third, with Elizabeth Pegg; fourth and ninth, with General Barnaveldt; fifth, with Adonis; sixth, with Chancellor; and eighth, with Hepworth's 68/62. Seventh, Mr. Gill with Mrs. Gill; and tenth, with Reliance.

Class 9. *The best feathered Tulip in the whole exhibition.*—King of the Universe, exhibited by Mr. Bentley in his stand of twelve Tulips. *The best flamed Tulip in the whole exhibition.*—Sir Joseph Paxton, exhibited by Mr. Bentley in Class 8.

BREEDER TULIPS.

Class 10. *Six dissimilar Tulips, two of each class.*—First, Mr. Bentley with Annie McGregor and Lady Grosvenor roses, Beauty of Litchurch and Elizabeth Pegg bybloemens, Sir Joseph Paxton and Lloyd's 47 bizarres. Second, Mr. Needham with Annie McGregor and Madame St. Arnaud roses, Talisman and Martin's 117 bybloemens, Sir J. Paxton and Lloyd's Seedling bizarres. Third, Mr. Moorhouse with Mabel and Hepworth's Seedling roses, Queen of the May and Talisman bybloemens, Sir Joseph Paxton and Hardwick's Seedling bizarres. Fourth, Mr. Wood with Annie McGregor and Mabel roses, Surpass le Grand and Alice Grey bybloemens, Horatio and Lea's No. 1 bizarres. Fifth, Mr. Mellor with Annie McGregor and Isabella roses, Beauty of Litchurch and an unnamed variety bybloemens, Sir Joseph Paxton and John Brook bizarres.

Class 11. *Three Breeders, one of each class.*—First, Mr. Bentley with Rose Hill, Leech's Seedling, and Sulphur. Second, Mr. Moorhouse with Mabel, George Hardwick, and Sir Joseph Paxton. Third, Mr. Mellor with Isabella, Beauty of Litchurch, and Sir Joseph Paxton. Fourth, Mr. Gill with Madame St. Arnaud, George Hardwick, and Willison's King. Fifth, Mr. Needham with Annie McGregor, Elizabeth Pegg, and Sulphur.

Class 12. *Single Blooms, Bizarre Breeders.*—First, second, third, fourth, fifth, seventh, and eighth, Mr. Bentley with Storer's Seedling, Lloyd's 239, Lloyd's 219, Lloyd's 223, Horatio, Lloyd's 119, Dr. Hardy. Sixth, Mr. Jones with Sulphur.

Rose Breeders.—First and third, Mr. Morris with Collier's Seedling. Second, Rev. F. D. Horner with Hepworth's 9/64. Fourth, fifth, sixth, seventh, and eighth, Mr. Bentley with Mrs. Barlow, Annie McGregor, Rose Hill, Mabel, and Queen of England.

Bybloemen Breeders.—First and third, Mr. Bentley with Martin's 117, second with Elizabeth Pegg, and sixth with Beauty of Litchurch. Fourth, fifth, seventh, and eighth, Rev. F. D. Horner with Seedlings.

The prize for the best breeder in the show was won by Mr. Morris with Collier's Seedling in Class 12.

SCOTTISH PANSY AND VIOLA ASSOCIATION.

THE first meeting of the above Society was held in the Religious Institution Rooms, Glasgow, on Wednesday, 5th June. There was a large attendance of members, and over 200 varieties of seedling Pansies and Violas were staged for the opinion of the Judges, who gave the following awards:—

Certificates of merit to Fancy Pansies Mrs. Gamp and The Baron; first-class certificates to Mr. Soots; certificate of merit to Viola Sunray, exhibited by Mr. S. M'Kee, Belfast; certificates of merit to Fancy Pansies Lady M. Hozier, Jeannie R. Karr; first-class certificate to A. Struthers, exhibited by Mr. G. Macpherson, Avondale; certificate of merit to Fancy Pansy Mary Bennett, exhibited by Mr. H. Chalmers, Beith; certificates of merit to Fancy Pansies Jessie Gillespie, Alex. Lister; first-class certificate to Col. Buchanan, exhibited by Mr. Alex. Lister, Rothesay; certificates of merit to Fancy Pansies John Mackie, James Smellie; first-class certificate to Mrs. Wm. Steele; certificate of merit to Violas Jessie Pretswell and Nellie, exhibited by Mr. John Smellie, Busby; certificate of merit to Viola Progress, exhibited by Messrs. Dobbie & Co., Rothesay.

The Judges were Mr. Wm. Cuthbertson, Rothesay, who presided; Mr. J. Baxter, Daldowie; Mr. M. Gray, Glasgow; Mr. M. Campbell, Blantyre; Mr. J. Stewart, Lennoxton; Mr. H. Hamilton, Lochwinnoch; Mr. W. Maxwell, Glasgow; and an entirely new departure was made in the method of making the awards. Each Judge was provided with a paper with columns for points for form, size, texture, colour, and distinctness, and each one put down figures according to his ideas of excellence. The maximum was twelve for each variety, and thus the highest possible total of the seven Judges was eighty-four. Sixty-three points carried a first-class certificate, and forty-two a certificate of merit.

The flowers were first handed to the Chairman, who after making his notes passed the variety on, and in this way all went before each of the seven Judges. The voting was practically by ballot, as all exhibits were placed on uniform stands, with only a number attached before going before the Judges.

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, London, W.



FRUIT FORCING.

Peaches and Nectarines.—When the fruit is all gathered from individual trees the wood on which it has been produced should be cut away to the shoot at its base, which is to afford the bearing wood for next season, except if the fruit has been produced on wood that is necessary to retain for the extension of the trees. All growths not absolutely necessary for next season's bearing or for the extension of the trees should be cut away, as it is important the foliage have full exposure to light and air, and it is equally important that it should die naturally, not prematurely through attacks of red spider or lack of moisture at the roots. Keep the inside border well watered, and the outside one must not be neglected if the weather be dry. Admit all the air possible, and when the buds are plump and the wood thoroughly ripened the roof lights, where moveable, may be taken off. Employ the syringe freely, one forcible application being of more service in freeing the trees from red spider than many sprinklings.

Trees Ripening the Fruit.—Ventilate the house freely, leaving a little air on constantly, and to insure the preservation of the foliage in health sprinkle the paths, borders, and other bare surfaces with water in the morning and afternoon, not allowing the soil to become dry, but giving due supplies of water as required. A light mulching of short spent material is very useful in preventing the surface cracking and the roots going down in quest of moisture. Syringing must cease directly the fruit commences to soften for ripening, or the moisture will cause the skin to crack and leave an unpleasant musty flavour, as well as spoiling its appearance. Some netting placed beneath the trees is useful to prevent falling fruits being bruised; but let the netting be "pocketed," so as to prevent the fruit clashing against each other. In gathering the fruit great care is necessary, as slight pressure is sufficient to spoil the appearance.

Trees Swelling off Their Fruit.—After the fruit has stoned and is taking the last swelling give every attention to the trees in watering with liquid manure or feeding with top-dressing of chemical manures washed in, mulching the surface lightly with short manure. The shoots should be allowed to extend where there is space, not pinching the laterals too closely, but they must be prevented shading the fruit, which should be raised with the apex to the fullest light. This can be effected by placing laths across the trellis, securing them to the wires. Continue forcible syringing morning and afternoon until the fruit begins ripening, then cease; but do not allow the border and other surfaces to become parchingly dry, as moderate moisture, provided the ventilation is liberal, will not injure the fruit, and it is absolutely essential for the benefit of the foliage.

Succession Houses.—Trees started in February are stoning, those brought forward gently having the fruit of good size, as is always the case when the trees are not hurried nor overcropped, and well attended to as regards nourishment and proper exposure of the foliage to light and air, with free ventilation on all favourable occasions. To continue the fruit in steady progress, and insure its stoning satisfactorily, there must not be any deficiency nor excess of moisture at the roots, and the foliage should be kept clean by daily syringings, and if necessary by the application of an insecticide. Continue the temperature at 60° to 65° artificially, allowing a free circulation of air between 70° and 75°, having it full when the latter is reached, and close at 75° with abundance of atmospheric moisture. If the temperature rises to 80° or 85° it will not do any harm, but admit a little air after nightfall, so as to allow the pent-up moisture to escape and the temperature to gradually cool through the night. Commence increasing the ventilation from 65° with the advancing sun.

Late Houses.—If it is desired to retard the fruit in any of these, so as to prolong the season of supply, it is best effected by free ventilation during the day and night when mild; indeed, there is only need to ventilate day and night to keep back the crop, so as to ripen about the same time, as usually occurs with trees against walls, and by judicious ventilation the fruit may be had over a lengthened period. It is necessary not to overburden the trees with more fruit in the early stages of growth than can remain for the crop, a moderate one being always better than a heavy crop; therefore thin well in the early stages, leaving a few more than will be required ultimately. Keep the trees well syringed, and mulch lightly, so as to keep the surface moist, thereby encouraging roots to the surface, giving thorough applications of water when necessary, and if the trees are weak and carrying heavy crops of fruit, afford liquid manure or top-dressings of chemical manures.

Pines.—*Fruit Ripening.*—When the fruits commence ripening syringing must cease, but the supply of moisture at the roots should be continued, affording water as necessary. With a view to improve the quality of the fruit, ventilate whenever circumstances permit, but do not allow the temperature to fall below 80° in the daytime, applying fire heat to maintain a night temperature of 70° to 75°, gradually reducing the moisture in the house. Queen and Providence Pines started in February will ripen this month, coming in about three weeks or a month before Charlotte Rothschild, Smooth-leaved Cayenne, and similar varieties

started at the same time and under similar conditions. They afford a successional supply which may be still further extended by removing some of the plants with the fruits to a cooler house. Although the Providence is not equal to a Queen Pine in quality, yet its size being superior, it is desirable to grow a limited number, as large fruits are useful at parties, if only for effect in table decorations. The heat at the roots should be 85° to 90°.

Plants for Winter Fruiting.—The strongest plants of those in the fruiting pots last September will now be showing fruit, if not means must not be further delayed to effect it for a supply of fruit for winter use. Bring the plants together and subject them to a comparative rest for the next month or six weeks, lowering the heat at the roots to 75°, maintaining a free circulation of air about the plants in favourable weather, ventilating at 75°, and allowing the heat to fall to that degree before closing the house, only employing fire heat to prevent the temperature falling below 60° at night, not withholding water altogether, but whenever a plant becomes dry afford a proper supply. The smaller suckers of last autumn that were wintered in 7 and 8-inch pots, and shifted this spring, must be kept growing until the pots are well filled with roots, at which time, if considered necessary, they may be subjected to the same treatment as advised for the larger ones, and those plants will then give a successional supply of fruit.

Spring-potted Suckers.—The strongest of those potted in March must be in their largest pots, if not there should be no further delay, as to allow them to become root-bound is detrimental to their after well-doing. Recently potted plants require regular bottom heat of 85° to 95°, and to be thoroughly watered, if the soil be dry, after potting, not giving any more until the soil again needs a supply. A too wet soil is not favourable to the formation of roots, moderate moisture only being needed.

Ventilating, Watering, and Shading.—Young stock will be making rapid progress, and must be regularly attended to in every particular, allowing such plants sufficient space for development, as nothing is so prejudicial to sturdy growth as crowding in the early stages. Ventilate early in the day at 75° to 80°, to render the foliage dry before it is affected by the sun. Examine the plants twice a week for watering, not giving any until it is needed, and then a thorough soaking with tepid liquid manure, being careful not to give it too strong. Discontinue shading succession plants; but those fruiting with the crowns in close proximity to the glass will require a slight shading from powerful sun. Syringe the plants on bright afternoons, and otherwise maintain a genial condition of the atmosphere by sprinkling the house, but avoid moisture in dull weather, as it only tends to cause soft growth. So long as water remains in the axils of the leaves syringing is not much required, therefore pour the water well up the plants, as the leaves have roots at their base that contribute to the vigour of the plants and swelling of the fruits.

Potting Suckers.—The early-fruited plants as they finish will afford suckers, which should be taken off and started at once in sufficient quantity to meet the demand, which will afford plants for fruiting about this time next year, forming supplementary plants to those started in the spring. The treatment then given will answer for these, only they will require more careful shading and frequent attention to damping, keeping close until rooted, as indicated by their commencing to grow.

Cucumbers.—In houses fire heat will only be necessary to prevent the temperature falling below 65° at night and to insure 70° to 75° by day artificially. Attend well to stopping the shoots, removing bad leaves, well thinning the old growths, and watering with weak liquid manure about twice a week. To encourage surface roots sprinkle the bed with sweetened horse droppings once or twice a week, and occasionally with a little soot or some approved fertiliser, both of which will supply nourishment to the roots and give off some ammonia.

Utilising Empty Structures.—Houses cleared of Vines in pots, Strawberries or bedding plants, may be usefully devoted to Cucumbers. They can be grown well in boxes of 15 inches depth and 18 to 24 inches square. A wood or other trellis may be improved at 18 inches from the glass. No fire heat will be necessary, the house being closed at 3 to 4 P.M., or earlier, according to the sun being clear or overcast, syringing then, the floors and every available surface being kept damp, so as to secure a good moisture through the day; but do not syringe in the morning, this often being the cause of great mischief to the foliage. Admit air at 75°, and allow the temperature to rise to 85° or 90° with sun, and close between 80° and 85°, and if the temperature rise to 90° or 95° all the better. Train with a single stem to the trellis, rubbing off all laterals to that height, then allow to grow; pinch the leader after it has grown two-thirds across the trellis. The laterals must be stopped one or two joints beyond the show of fruit.

Pits and Frames.—Water the plants about 4 P.M., closing then or earlier according to the weather, but it is not safe to close so early as to raise the temperature above 90° or 95°. Liquid manure should be given occasionally, but not over the foliage, and not applying it too often. Keep the growths fairly thin, thinning out old shoots and encouraging others in their place, so as to keep up a succession of bearing wood. Stop one or two joints beyond the show for fruit. Avoid crowding, also overcropping, and do not allow the fruit to remain on the plants a day longer than can be helped.

THE KITCHEN GARDEN.

Asparagus.—Very hot weather in May hastened the growth of Asparagus. With many growers it is the rule to cease cutting on or about June 15th, and this date should certainly be the latest this year. Besides, Peas ought to be fairly plentiful by that time in most warm

gardens. Exhausted beds would be greatly benefited by a dressing of fish guano, or nitrate of soda and guano mixed, and applied at the rate of 2 ozs. per square yard of bed. If very weedy give a liberal dressing of manurial salt, enough to whiten the bed, or otherwise the weeds will not be long before they smother the Asparagus. It is not yet too late to fill gaps in the rows of young Asparagus, or even in the older beds. Select a showery time if possible, but do not wait long for this; and move young plants that have already formed some top growth. This year's seedlings move readily. If seeds are sown where the plants are to remain permanently, thin to a distance of not less than 15 inches apart, or they may be left half that distance, and half be transplanted next spring. Extra strong growths on either isolated plants or thinly planted beds should be supported with stakes, otherwise they break in wet windy weather, to the injury of the buds or crowns forming at their base.

Artichokes.—Seedling Globe Artichokes turned out of pots into rich soil should be supplied with water occasionally till strongly established in their fresh quarters. They may eventually be left 18 inches apart in the row, and by cutting out the inferior forms directly they are detected good room will, as a rule, be given. Some of the old clumps are now pushing abundance of growths, and these must be thinned very freely with a view to having three extra strong, branching flowering stems from each. Divisions or newly rooted growths ought to be liberally treated, more so than in the case of the naturally vigorous seedlings. All pay for having abundance of water in dry weather, liquid manure helping the older clumps. Mulch with strawy manure.

Jerusalem Artichokes, unless planted similarly to Potatoes, are almost certain to come up too thickly, and if the tops are crowded it is not possible for a good crop of tubers to form below. The simplest way out of the difficulty at this late date is to cut 3 feet spaces between the mass of plants. Draw soil up to the rows generally, and that will be all that is needed.

Broccoli and Cauliflowers.—Varieties of Broccoli that heart late in the autumn are of good service as forming a succession to late Cauliflowers, and for carrying on the supply well through the winter. Veitch's Self-protecting Broccoli is one of the best, and this ought to be put out to have plants, lifting and storing in pits, frames, or cool houses, where they will continue to heart during the winter. This class of Broccoli may safely be disposed between widely planted Ashleaf or other short-topped early maturing Potatoes. If the later varieties are too thick in the seed beds, and the ground is left clear for this crop, do not delay planting; but they must be grown on very firm ground, and given good room, or otherwise they will become too rank to be hardy. It is the later raised plants that usually prove the hardiest. If Autumn Giant Cauliflower is planted now these will give a serviceable supply late in the season. When early Cauliflowers commence hearting give liquid manure freely.

Various.—Top the more forward Broad Beans to destroy aphides and hasten the growth of pods. If in demand late in the season sow rows of Beck's Dwarf Green Gem. Brussels Sprouts should be planted early, and on firm good ground, or they may be disposed among early Potatoes, as advised in the case of early Broccoli. Treat the Green Curled Borecole similarly. It is possible to be too early with Savoy, as these are only of value after frosts have destroyed the more tender vegetables. Endive is not in great demand early in the season, but if appreciated sow seeds of Moss Curled and Green Curled thinly in drills 9 inches apart, thinning to about 6 inches asunder when large enough. Sow good forms of Cabbage and Cos varieties of Lettuce at fortnightly intervals in lines where the plants are to mature. If Radishes are in demand sow the Turnip-rooted every ten days on good ground, and dust over frequently with soot and lime.

THE BEE-KEEPER.

APIARIAN NOTES.

VENTILATING FLOOR.

PREVIOUS to the ventilating floor, ekes or "raises" (as they were frequently termed) were for a long time in use, especially with the Stewarton hive. These ekes were used for two or three purposes. In the winter for ventilation for the better preservation of the bees, and in the summer to help to prevent swarming. When the proper time came the eke was put under the hive; the bees took possession of it immediately, and combs were built on those having bars. These ekes were allowed to stand from one to three days, when they were removed and the supers put on, by which removal, and the hive becoming more crowded, the bees took to the supers at once.

The combs built in the eke were removed and used as "took" for supers. These white combs preserved the purity of the future combs, and produced finer honey than those made on comb foundation. During the autumn, or the time the hives were prepared to stand the winter, an eke was placed under each hive. This was intended to prevent damp and mould on the combs, and bees from dying from distension and similar diseases.

When used in my apiary I observed ekes did not prevent damp, mould, or dead bees on the floor and between combs. I also observed when bees were airing in the winter months many of them were enfeebled before they left the hive from the damp floor. Hives which had no ekes, and having their combs well down, the bees on returning were safe. In order to make all clear the strong hives were always the worst winterers. My first step with the ventilating floor was to do away with the ekes entirely, bringing the combs, or rather managing to have them, near the entrance. I had my floors covered with perforated zinc, then over it a reversible and moveable wooden floor, but later the wood was removed, for I observed that bees died when they came into contact with damp wood. They passed over zinc at lower temperatures with impunity. I tried floors of coal, turf, wax, and wood, but damp could not be entirely prevented, so contrived the perforated zinc over an empty chamber. The best plan of all is peat beneath the zinc for the winter only.

Considerably over thirty years ago, when taking my bees to Arran, they were subjected to rough treatment and overheating in the railway vans and on a steamer, with the result in a short time that one hive only was free from foul brood. To clear out the disease required prompt action. I put every hive through the "purgatorial" process, adopted the ventilating floor, and have not seen one diseased cell since. This, coupled with hives which were never taken to the moors, pointed to the fact that overheating was the prime, if not the sole, cause of foul brood. Raising the hive from the floor in very hot weather does not cool its interior to the extent we are led to believe, as it cannot by the plan be made lower than the temperature outside. The ventilating floor keeps bees in a healthy and cleanly state, the hive being always free from dust or debris.

Full instructions were given lately how to construct the whole hive, including the floor. This is simply a case the size of the hive and from 4 to 6 inches deep, having a sheet of perforated zinc on the top. This lowers a little to the back fillets for the wooden shutter to rest against, being held tight to them by a button at the back and by a fillet each side. These fillets lower at the back to permit the shutter to drop when ventilation is wanted, or when the shutter has to be cleaned of parasites and dirt. It resembles the bottom of a bird cage. To keep the stand rigid and less in depth I nail pieces of wood on the flat about 3 inches by half. These stands, as all nailed framework should be, are checked; the feet too, about 2 inches below the stand about 2 inches by 1½ inch, should also be half checked and fastened with brass screws.

In conclusion, I may inform your correspondent, "J. B.," that between the perforated zinc and shutter there must be a space between 1 inch and 2 or 3 inches to condense the perspiration on the shutter, and there will be no dead bees on the floor nor foul brood, unless infected from another source.—A LANARKSHIRE BEE-KEEPER.



- * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Gold-coloured Beetle (C. L. M.).—The beetle received is popularly called the Rose Chafer (*Cetonia aurata*). It emerges from the pupa some time in June. Though associated with the Rose, it often swarms on the bloom of other plants, the Privet and Elder for instance, and also on humbler species, such as Candytuft. Most authorities agree that it bites the petals, but some entomologists have questioned if this is the fact. In the larva state it lives on decayed wood, also probably upon roots of various plants during two or three years. It occurred abundantly about the old market gardens of Brompton and Fulham.

Zonal Pelargoniums for Winter (Wreath).—As you particularly require an answer this week it must be short. The plants should be encouraged to make stout, short-jointed stems and thick leaves through being potted firmly in generous soil and grown in the full sun in the open air, but first where they can have protection, as in frames, from drenching rains. Top them once or twice, give weak liquid manure when the pots are filled with roots, and pick off all flower buds as they form during the summer. Your other questions did not arrive soon enough to be satisfactorily answered in the present issue.

Tomatoes not Swelling—Preventing Mildew (Cross).—Wednesday morning's letters can only be answered briefly in the current issue. If you top the plants you will prevent other fruits forming and swelling, though it might assist the lower fruits. It is a question of space and the value of the crop in the aggregate. We have previously stated that Mr. R. Fenn absolutely prevents mildew on his Tomato plants and Vine in the same house by the systematic use of anti-blight powder. Previous to its use both Vine and Tomatoes under glass, and Roses outdoors were, as we have seen, white as millers; since its regular use, as we have also seen, they are absolutely free from even a speck of mildew. Mr. Fenn has himself recorded his experience on the subject in our columns.

Diseased Tomato Plants (J. Barr).—The plants are affected with the drooping disease. It is caused by the Tomato slime fungus (*Plasmodiophora tomati*). The whole of the *Plasmodiophoras* are prevented by dressing the ground with quicklime, and avoiding manures of the sulphate class, or those formed by dissolving with sulphuric acid. Dusting quicklime (air slaked) on the affected parts arrests its progress. Your plants are also affected with the Potato fungus (*Phytophthora infestans*), and issuing from the tissue of the yellow or brownish portion of the leaves we detected the conidiophores of this fungus. The preventive, for there is no remedy, is to spray the plants with Bordeaux mixture, or dust them with one of the anti-blight powders in the market. This will prevent the spread of the disease, and you may yet have a satisfactory crop, especially as the plants are healthy at the roots.

Rhododendrons not Flowering (Somerset).—It is not unusual for *Rhododendrons* to flower very fully one year and but sparingly the next, through being more or less exhausted by the excessive production of bloom, and seriously retarded in the formation of buds by neglecting to remove the trusses as soon as the flowering is over. If this be done by taking each spent truss between the fingers and thumb, and a sharp twist given downwards on one side, the work can be done readily without damage to the pushing shoots, and seeding being prevented the growth and buds will profit correspondingly. You could not have anything better than the leaf mould and manure rubbed through a sieve, but it is desirable to add some sand, either mixing it with the compost or sprinkling on the surface. We do not advise lifting the shrubs, as it sacrifices their healthy appearance, and is not good for them generally, though it certainly has a tendency to induce the production of flower buds.

Dividing Clumps of Asparagus (C. R. P.).—It is not advisable to take up and divide thick clumps, as the plants or divisions do not grow at all well, the check being too great; hence the best plan is to fill up the gaps by planting one or two-year-old plants from seed in the spring, preferably when the plants are starting into growth, or early in April, setting carefully, and without injuring the roots or crowns of the old plants. Some growers make the gaps in old beds good by sowing seed early in April, inserting the seed in holes about an inch deep, and two seeds in a hole, the holes being 15 to 18 inches apart, and so made where the bare places are to fill them evenly, covering the seeds with fine soil. The young plants from the seeds will gain strength from year to year, and produce heads in the third year fit for cutting. The best varieties are *Conover's Colossal* and *Early Giant Purple Argentuil*. If you prefer saving seeds from your own plants, either keep them in the berries over winter or separate them from the pulp when thoroughly ripe.

Diseased Potato Crops (W. C.).—The Potato plant is affected with "curl" disease, which is caused by a fungus called *Macrosporium solani* as regards the "curl," for we found two distinct parasites, the one just mentioned being present on the part above ground, whilst on the dead portion or decaying stem below ground was the somewhat common fungus found on decaying Potatoes—namely, *Fusarium solani*. The latter is closely allied, if not synonymous, with the fungus producing the "sleeping" disease in Tomatoes, whilst the former is little different, if at all, from that causing "black stripe" in these plants and fruits. The spores in both cases are in the soil, and they seem to be capable of resting for considerable periods, and on the ground being cropped with the plants on which they are parasitic they germinate, attack and destroy the crop or such part as they infest. The diseases, however, are carried over from year to year in the seed or sets, and the only preventives are clean seed and ground subjected to a due course of crop rotation, with an occasional liming, not using less than 1 peck per rod or 40 bushels of freshly burned lime per acre, employing it during dry weather in the spring, about a month or six weeks before planting, and spreading it on the ground as soon as slacked. To prevent the spread of "curl" fungus, which causes the tops to collapse later on in plants that escape the first assaults of the malady, spray the plants with Bordeaux mixture, and repeat twice at about three weeks intervals, the first taking place when the tops are about 6 inches high. The spraying is equally effective against the Potato disease fungus (*Phytophthora infestans*).

Nectarine Fruits Falling (Nemo).—On examining the fruits sent we have no doubt the misfortune complained of is due to one of two causes, or it may be in part to both—namely, imperfect fertilisation or a deficiency of lime. If the border contains a good quantity of calcareous matter, then undoubtedly the blossoms did not set as they should have done. This may have arisen from a deficiency of pollen, imperfect organs of fructification, or a damp atmosphere when the tree was flowering.

Apple Shoots Withered (R. S.).—The shoots are dried, and have probably suffered through the trees being kept a considerable time out of the ground, or they may have been injured through freezing and handling before planting. Certainly they have had their tissue destroyed by some means, the sap not being able to penetrate the damaged parts. No damage seems to have resulted from the pruning, the tissue being entirely destroyed, and no doubt prior to the pruning, although the wood might not show the defective condition until it was subjected to the increased evaporation of the advanced season.

Apple Chermes (Inquirer).—The most efficacious wash for the destruction of this pest is one containing sulphuret of lime. This may be made by combining the sulphuret with water, or more conveniently by boiling together sulphur and lime in the proportion of 1 lb. of sulphur and 2 lbs. of lime to 4 gallons of water. Tobacco water also kills them, with or without the addition of Gishurst compound, but the difficulty is to reach the insects, secluded as they are in the blossoms. In fact, not much can be done during the spring, and the time for the destruction of chermes is the winter. Those which are to be the parents of the new brood lodge within cracks of the bark, angles and ridges of twigs, and the like places of shelter, where, however, they may be reached and killed by copious syringing with a hot solution of soft soap.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (W. S.).—*Kerria japonica* flore pleno. (Y. G.).—1, *Oncidium sphacelatum*; 2, dead. (H. C.).—1, *Carex paludosa*, Marsh Sedge; 2, *Geum urbanum*. (W. T.).—1, *Dendrobium Parishii*; 2, *Cypripedium barbatum*; 3, *Maxillaria tenuifolia*. (C. F. F.).—1, *Alternanthera magnifica*; 2, *Kleinia repens*; 3, *Funkia undulata variegata*; 4, *Cupressus Lawsoniana erecta viridis*; 5, *Retinospora plumosa aurea*. (Junior).—The numbers had become detached. The small flower was *Cymbidium bicolor*; the larger one *Maxillaria Hendersoni*, and the *Cattleya* a form of *gigas*. (H. Cameron).—1, *Cytisus alpinus*, the Scotch Laburnum; 2, *C. Adami*; 3, *C. purpureus*; these two a bud sport intermediate between the other two, all growing on the same tree; 4, *Cornus sanguinea*, the Red Dogwood. (R. H.).—1, *Habenaria bitolia*; 2, *Listera ovata*. (W. H. C.).—1, *Salvia verbenacea*; 2, *Spiraea bella*; 3, *Pentstemon Cobaea*; 4, *Mertensia dahurica*; 5, *Prunella vulgaris*; 6, *Spiraea laevigata*. (Z.).—1, *Andromeda ovalifolia*; 2, *Thujopsis dolabrata*; 3, *Abies canadensis*; 4, *Pernettya mucronata*; 5, Possibly *Pinus pinsapo*, specimen too young. (T. K.).—*Medicago orbicularis*.

COVENT GARDEN MARKET.—JUNE 12TH.

OUR market has settled down to a more regular business, supplies of Peaches, Grapes, and Strawberries being good. Large consignments of Southampton outdoor Strawberries to hand.

FRUIT.

	s.	d.	s.	d.				s.	d.	s.	d.
Apples, Nova Scotia, per barrel... ..	10	0	to	21	0	Cobs, per 100 lbs. ..	10	0	to	0	0
„ Tasmanian, per case	5	0	11	0	0	Grapes, per lb.	1	6	3	0	0
Asparagus, English, per bundle	1	0	3	0	0	Lemons, case	10	0	15	0	0
						Peaches, per dozen ..	6	0	12	0	0
						St. Michael Pines, each	2	0	6	0	0
						Strawberries, per lb. ..	0	6	2	6	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb.	0	6	to	0	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	0	Onions, bushel	3	6	4	0	0
Carrots, bunch	0	3	0	4	0	Parsley, dozen bunches	2	0	3	0	0
Cauliflowers, dozen	3	0	6	0	0	Parsnips, dozen	1	0	0	6	0
Celery, bundle	1	0	1	3	0	Potatoes, per cwt.	2	0	4	0	0
Coleworts, dozen bunches	2	0	4	0	0	Salsify, bundle	1	0	1	6	0
Cucumbers, dozen	1	6	3	6	0	Seakale, per basket	0	0	0	0	0
Endive, dozen	1	3	1	6	0	Scorzoneria, bundle	1	6	0	0	0
Herbs, bunch	0	3	0	0	0	Shallots, per lb.	0	3	0	0	0
Leeks, bunch	0	2	0	0	0	Spinach, bushel	1	0	1	6	0
Lettuce, dozen	0	9	1	6	0	Tomatoes, per lb.	0	4	0	7	0
Mushrooms, punnet	0	9	1	0	0	Turnips, bunch	0	3	0	6	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (golden) dozen	6	0	to	12	0	Heliotrope, per dozen	..	6	0 to 8 0
Aspidistra, dozen	18	0		36	0	Hydrangeas, per dozen	..	12	0 42 0
Aspidistra, specimen plant	5	0		10	6	Lobelia, per dozen ..	..	4	0 6 0
Azaleas, each	3	0		4	0	Lycopodiums, dozen ..	..	3	0 4 0
Calceolaria, per doz.	6	0		9	0	Marguerite Daisy, dozen	..	8	0 10 0
Coleus, per doz.	6	0		9	0	Myrtles, dozen .. ..	..	6	0 9 0
Dracæna, various, dozen ..	12	0		30	0	Palms, in var., each .. ..	..	1	0 15 0
Dracæna viridis, dozen ..	9	0		18	0	„ (specimens) .. ..	..	21	0 63 0
Euonymus, var., dozen ..	6	0		18	0	Pelargoniums, per dozen	..	10	0 15 0
Evergreens, in var., dozen	6	0		24	0	„ scarlets, per			
Ferns, in variety, dozen ..	4	0		18	0	dozen .. ..	..	3	0 6 0
Ferns (small), per hundred	4	0		6	0	Rhodanthe, per dozen	..	4	0 6 0
Ficus elastica, each	1	0		7	0	Roses, per dozen .. ..	..	8	0 24 0
Foliage plants, var., each	2	0		10	0	Scuzanthus, per dozen	..	6	0 9 0
Geraniums, Ivy, per dozen	7	0		10	0	Spiræa, per dozen .. ..	..	6	0 10 0

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.—Orchid Blooms in variety.

	s	d	s.	d.		s.	d.	s.	d.	
Arum Lilies, 12 blooms ..	4	0	to	6	0	Pansies, various, dozen				
Azalea, dozen sprays ..	0	6	1	0	bunches	1	0	to	2	0
Asparagus Fern, per bunch	2	0	3	0	Pelargoniums, 12 bunches	6	0		9	0
Bouvardias, bunch	0	6	1	0	Primula(double), doz. spys.	0	6		1	0
Carnations, 12 blooms ..	2	0	6	0	Ranunculus, doz. bunches	1	6		2	0
Eucharis, dozen	4	0	6	0	Roses (indoor), dozen ..	0	6		1	0
Gardenias, dozen	3	0	4	0	„ Moss (French) per doz.	1	0		2	0
Geranium, scarlet, doz.					„ Tea, white, dozen ..	1	6		2	6
bunches	4	0	6	6	„ Yellow, dozen (Niels)	3	0		6	0
Lilac (French) per bunch	3	6	4	6	„ Safrano (English),					
Lilium candidum, dozen					dozen	1	0		2	0
blooms	1	0	2	0	„ Yellow, dozen blooms	1	6		2	0
Lilium longiflorum, dozen	3	0	4	0	„ Red, dozen blooms ..	2	0		4	0
Marguerites, 12 bunches ..	1	6	3	0	Smilax, per bunch	4	0		6	0
Maidenhair Fern, dozen					Spiraea, dozen bunches ..	4	0		6	0
bunches	6	0	8	0	Stephanotis, dozen sprays	2	0		3	0
Orchids, dozen blooms ..	1	6	12	0	Tuberoses, 12 blooms ..	0	4		0	6



SWINE.

“BUY when live stock is cheap, sell when it is dear,” is a trade maxim which might be applied to swine now with advantage. For a longer time than usual pigs have been so high in price that breeders have found them very profitable; but the usual reaction has come again at last, and store pigs have fallen to a nominal price. At two markets recently we have bought sturdy little “stores” at 12s. apiece. We could take almost an unlimited number of really healthy pigs at that price for our corn farms, giving them a run on grass near the homestead with just enough corn to keep them in fair growing condition till the corn stubbles are ready.

As they come off the stubbles they are pushed on for market briskly, most of them being sold as “light bacons” or “middles.” These are pigs in prime condition, with a range in weight from 130 lbs. to 190 lbs., and with a thickness of fat not exceeding 2½ inches in any part of the back. Such pigs command the highest prices from the best bacon firms if consigned to them by the truckload of twenty-five pigs. They will purchase others at special quotations up to a maximum weight of 240 lbs and a back fat thickness of not more than 3 inches, the price falling with every 20 lbs in weight over 190 lbs. and with a proportionately greater thickness of fat, but they will not quote for heavier pigs in quantity.

This is an aspect of the pig trade with which farmers generally are unacquainted. Our special object in mentioning it is to urge on their attention the true importance and profit of striving for a share of the big wholesale trade in the prime light and middle bacon pigs which we have described. To take full advantage of it, or, in point of fact, of the pig trade at all, the breeding, selection, and classification of swine must be more systematic and on a much larger scale. In this, as in most other farm produce on which a profit is still possible we want regular consignments by the truckload from rural districts; we should then cease to hear complaints of preferential railway rates because they would cease to exist. It is simply because most imported farm produce can be handled in bulk with such ease and so quickly that the railway rates for it are so low. But this is a matter which must be dealt with in another article.

Turning now to the question of breeding, we would have middle whites or a good cross for porkers, and Tamworths for bacons. The beneficial effect of judicious cross-breeding is simply marvellous. Berkshire or Suffolk sows crossed with a pedigree middle white boar give excellent porkers, on which a profit is always possible. Porkers of 50 or 60 lbs., and bacons of about three times that weight, are profitable pigs. Have no

sows that are unsatisfactory in any way. Begin breeding at the age of six months, and as fast as possible subsequently. After the first farrow a sow should average at least twenty pigs a year, but it should not be kept for breeding when it becomes very big and unwieldly. As to the number of sows, we should like to have seen very many more of them during the two years of high prices through which we have just gone. It is certain that in 1892 when pigs were so cheap they proved very profitable to those who had the wit to buy cheap in the autumn of that year and sell in the spring of 1893, when they became very dear. With corn so cheap we certainly do not think it advisable to reduce the number of sows now—rather would we take advantage of a cheap market to add to their number.

Always have before you the risk of swine fever, and not only keep sty and litter thoroughly clean, but pay heed to the dietary, which change occasionally. If the sow and pigs cannot have a run out on grass give them such green food or roots as the season affords, a few coal cinders occasionally, also some Thorley’s condimental food, and above all constant attention.

WORK ON THE HOME FARM.

Mangolds generally appear to be a full, strong plant, and we have seen much singling and hoeing being done among them during the past week. Continuous Mangold growing is done on the sewage farm at Luton with complete success, the crop every year being a fine one. In 1892 it was remarkably so, but then and always the narrow beds were enriched and moistened by the sewage with which the trenches between the beds are kept filled. The obvious lesson is not merely immunity from drought by such a system of irrigation, but also how, when soil fertility is as fully sustained as this is, Mangolds or any other crop may be grown in it to perfection continuously.

Wild Mustard is rampant more or less just now wherever we go. We have a small arable field lying fallow which is just a sheet of yellow with it. The flower petals are falling, and we intend having it well worked by the steam cultivator before the seed of the Mustard, Charlock, or Kedlock ripens at all. This has been an arable field for many years, and it would still be very useful for green crops or roots, but with the Charlock before we have decided to get it fairly clean this summer, and then lay it down to grass with a corn crop. To keep it in plough means a long battle with the Charlock at a considerable outlay to very little purpose. Laid down to grass the pest is beaten, and the matter settled once for all.

Dull weather has retarded the haymaking, but no harm has been done, as what thunder showers there has been were very local. Mixed seeds are a splendid crop, both Rye Grass and Cocksfoot being alike vigorous. Meadow grass comes on apace, and the haymaking in all rich pasture south of the Trent will soon be general. Growth in poor meadows lags behind sadly, growth waits on rain as usual. If rain does not come soon there will be no mowing till the first weak growth that should have been the hay crop is getting brown and sere, and what should have been the aftermath has grown up among it. This sort of semi-failure is no new thing, but happens more or less yearly.

METEOROLOGICAL OBSERVATIONS.

OAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1895. June.	Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.		
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.		
Sunday ..	2	29.921	56.2	51.4	S.W.	59.0	65.4	45.8	103.3	42.0	—
Monday ..	3	30.117	61.8	54.9	N.	57.7	76.0	43.2	124.3	34.4	—
Tuesday ..	4	30.225	60.2	56.9	N.	59.2	64.4	55.4	93.1	55.1	—
Wednesday	5	30.330	57.3	55.2	N.	58.9	72.7	55.6	111.1	49.6	—
Thursday ..	6	30.309	57.9	52.8	N.E.	58.3	67.4	49.8	117.0	44.2	—
Friday ..	7	30.230	64.9	57.0	N.	58.9	79.3	49.7	124.1	44.7	—
Saturday ..	8	30.170	66.9	58.9	N.	60.4	82.7	49.7	126.9	43.1	—
		30.186	60.7	55.3		58.9	72.6	49.9	114.8	45.3	

REMARKS.

- 2nd.—Fine all day, but brighter in the after part.
- 3rd.—Bright, with hot sunshine till about 3 P.M.; overcast after, and drizzle in evening.
- 4th.—Overcast all day, a little sunshine in evening.
- 5th.—Drizzly early, and overcast morning; generally sunny after 2.30 P.M.
- 6th.—Generally overcast till 11 A.M.; bright sunshine all afternoon.
- 7th.—Brilliant throughout, with pleasant breeze.
- 8th.—Bright and warm throughout.
- A uniformly fine week, but of variable temperature; the high maximum on Saturday made the mean for the week slightly above the average.—G. J. SYMONS.



WM. PAUL & SON'S NEW ROSES for 1895.

SYLPH (Tea), White, tinted with Violet and Peach, a beautiful blending of colours; large, high-centred, with deep, stiff petals, vigorous, and constitution hardy, very free-blooming, 7/6 each.

ZEPHYR (Tea), Sulphur-Yellow, changing to nearly White, large and full, cupped form, very free and elegant, good habit and vigorous; a very effective Rose, and excellent for cutting, 7/6 each.

NEW AMERICAN VARIETIES.

MRS. PIERPONT MORGAN (Tea), 3/6 and 5/- each.

PINK SOUPERT (Polyantha), 3/6 and 5/- each.

PRINCESS BONNIE (Tea), 3/6 and 5/- each.

The New Continental Roses for 1895.

A selection of the best varieties, including **FIAMMETTA NABONNAND** (described as a White Papa Gontier), 3/6 each; 36/- per dozen.

NEW ROSES OF 1894.

CLIO (H.P.), Flesh colour, shaded Rosy Pink; flowers large and handsome, exceedingly vigorous and free blooming. A grand Rose. 3/6 and 5/- each.

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LORNA DOONE (Bourbon), Magenta-Carmine shaded with Scarlet; large. A splendid Autumnal bloomer. 3/6 and 5/- each.

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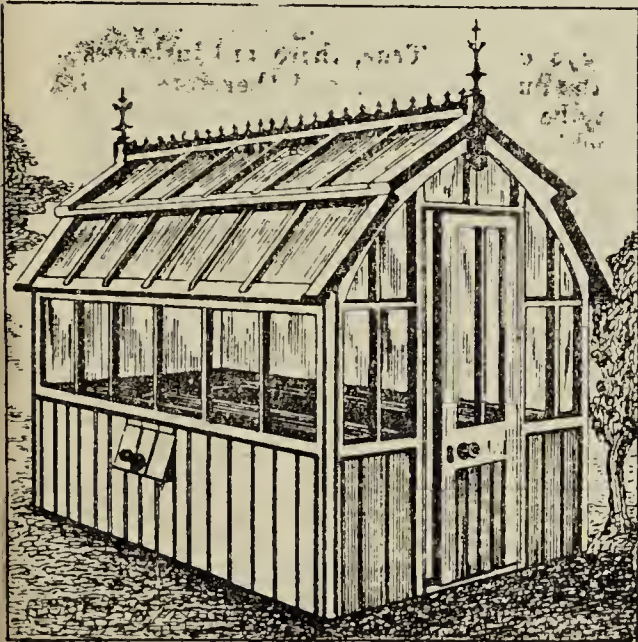
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2 " " 8 ft. by 6 ft. 2 10 0
Violet Frame, 4 ft. by 6 ft. 1 7 6

Carriage Paid on Orders amounting to 40s. and upwards to any Goods Station in England and Wales.

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THE NEW EARLY STRAWBERRY FOR 1895, STEVENS' WONDER.

The earliest variety in cultivation and very prolific; solid fruit, good flavour, high perfume.

Awarded First-class Certificates, Royal Horticultural Society, and Royal Botanic Society, 1895. See *Gardeners' Chronicle*, March 2; *Journal of Horticulture*, March 14; and *The Garden*, March 16.

Having purchased the whole of the stock of this grand new early Strawberry from the raiser, we have pleasure in offering it as follows:—

STRONG PLANTS, in Pots, £5 per 100, 15/- per doz.
RUNNERS £3 " " 9/- " "

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AGERATUMS, best dwarf sorts, to name. In pots, 2/- doz.; 12/6 100. In boxes 1/3 doz.; 7/6 100.

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SALVIA, Patens, 3/6 doz. **MUSK**, Harrisoni, 2/6 dozen.

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Journal of Horticulture.

THURSDAY, JUNE 20, 1895.

PRODUCE FOR PROFIT.

GREAT BRITAIN throughout all modern history has been a commercial and utilitarian nation. If this had not been so the mere geographical speck occupied by this nation on the face of the globe could not possibly have attained to the prominent position now enjoyed and admitted by the force of its enterprise and corresponding wealth. There have been ebbs and flows in its prosperity, and from time to time one or other of its great industries have been periodically inflated and depressed. Its population has been continually increasing, and, subject to temporary checks, its trade expanding. But it was not to be supposed that other nations would be content to look on and let us take the lead unchallenged in the field of production for meeting the wants of the world. The extraordinary developments in rapidity of communication and the transference of commodities forbade that, and we have now formidable rivals in many lands.

Though we inhabit a small island there is no such thing as isolation, and the days of monopolies are past. It is, so to say, as easy now to pass from nation to nation, even to the uttermost parts of the earth, as it once was to pass from county to county across our little territory from east to west, or north to south. As a result we have now, in practically everything we produce as a nation, keen competitors in other lands, distant as computed by mileage only, and for commercial purposes very near, even on speaking terms. The time has gone for ever when each civilised nation will be content to supply its own needs alone, and each is now striving to meet the wants of the other. This rivalry in production is bound to go on, and many who engage in the contest must of necessity find it "hard to live," and some in the very nature of things will "go under."

The harder the times become as affecting certain industries the greater the pressure will be on our legislators to remove obstacles and make laws for the benefit of such industries. In this reference it may be well to bear in mind that legislators are made by the community, and the fact that this is very "mixed" renders the process in any particular direction provokingly

slow to the persons interested. The great problem of the times appears to rest in the discovery of some method of helping one section without hindering the other, and whatever may be the outcome of collective effort on behalf of an over-pressed industry, one thing is clear—namely, that those persons engaged in it cannot make any possible mistake in striving with all their might to range themselves amongst its most successful representatives. This can only be done by the acquisition of the widest knowledge, the exercise of the best judgment, and the application of methods they have discovered to be sound, or which others may have found satisfactory.

The *Journal of Horticulture* and its supporters are directly interested in the successful cultivation of garden products both for home use and commercial purposes. At the moment we have in view the last named aspect of gardening, in which more and more persons are engaging every year in the hope of deriving profit from it. Some succeed, while others fail, as in all occupations. There is no disgrace in failure when efforts have been conducted on strictly honourable lines, and we have no reproach for striving and industrious men who are not favoured by fortune in their undertakings. A person may be thoroughly competent as a cultivator, yet if he does not happen to have a supply of what is most in demand at a particular time his labour will have been to a large extent wasted. If we have more inquiries of one kind than another they are from persons who either desire to know what can be grown to give profit, or how to remove difficulties which are encountered in the work of commercial gardening.

Several months ago we were inundated with letters in reply to a communication inserted from a perplexed correspondent relative to the profitable occupation of houses in the winter that were devoted to Tomatoes in the summer. Not half of what came to hand could be published, and with the view of eliciting information of a more precise nature, we offered a silver medal for the best essay, or essays, bearing directly on the "Profitable Occupation of Glass Structures in Winter." This brought a mass of information, so great and so varied, that it was most difficult to deal with. As a matter of fact no adjudicators could be found to declare any one essay to be better than all others. On that basis a decision would never have been arrived at. The essays were then divided according to the subjects treated—namely, those which dealt with plants and flowers mainly, and those which dealt with other crops. Then a further assortment had to be made which led to the setting aside of some admirably written essays containing valuable hints and cultural details, but in which the cost involved and the profits obtainable were not indicated with sufficient clearness. A few essays had been too hurriedly written and thus lost points. It should be borne in mind by writers that the value of literary productions is determined on the same principles as exhibits at shows; that is, judges are bound to note all faults as well as merits, and they cannot take into account the difficulties of exhibitors.

Ultimately the essays were reduced to four, and these divided into pairs according to the subjects treated, with the object of granting two medals. Two examiners were in favour of the essays of "Excelsior" (Nantwich) and "One of the Craft," two others voting for "Excelsior" (Leominster) and "Practice." In the dilemma a referee, with power to decide the matter in any way he thought best, was appealed to, his verdict to be final. It was as follows:—"In my opinion each essay contains something better than the other, that should not be lost, and as I cannot exclude any of them without a sense of injustice to the writers I am bound either to advise a medal for each or not one for any." Silver medals are, therefore, granted to Mr. Peter Williams, Oakfield, Nantwich; Mr. George Summers, Sandbeck Park, Rotherham; Mr. George Hart, Buckingham, Shoreham; and Mr. Robert Morrow, Leominster. These essays will be published in the hope that they will afford useful information that may be turned to account under circumstances to which it may be applicable.

Four other essays are deserving of honourable mention, but as the writers have not been communicated with we do not feel at liberty to publish their names.

FIGHTING INSECT PESTS.

GARDENERS assuredly need to be blessed with indomitable courage and unceasing energy, for the enemies they have to fight against are innumerable, and the persistency with which their battles must be waged afford ample scope for the proverbial British determination.

Red spider and thrips are at the present time causing much trouble, and strict attention is necessary to prevent their ravages destroying many a promising crop. In the case of Peach and Nectarine trees under glass or in the open air the difficulties are not nearly so great as formerly, because we have now several splendid insecticides, which, if used in the right way, may be depended on to completely destroy red spider and thrips, without injuring the leaves they infest in the least. Calvert's carbolic soap, used at the rate of $1\frac{1}{2}$ oz. to a gallon of water, will do this, but of course especial pains must be taken, when the water is being applied with a syringe, that the under side of the leaves is thoroughly wetted in every part. There is, however, one objection to the use of this preparation on Peach trees under glass—viz., that it leaves a settlement on the trees, also the glass and wood-work of the house.

The great competition which has been going on between the manufacturers of insecticides has, however, at last brought about another step in advance, for the XL All insecticide, if mixed at the rate of one part to thirty parts of water, will kill red spider and thrips in one application, and when syringed on trees or plants leaves the foliage perfectly clean and free from disfigurement. The aim of the cultivator should, however, be to try and if possible prevent insects from gaining a footing. With this end in view care should be taken that the trees do not suffer from want of water at the roots, and to prevent evaporation a mulching of short manure ought to be given for a distance of several feet around the stems of wall trees. In the case of trees growing in lightly constructed houses it is often an excellent plan to apply a thin shade when a period of tropical weather sets in.

When red spider once gains a footing in vineries it is a much more serious business to completely eradicate it than in the case of other fruits; not because insecticides are less deadly in their effect on insects feeding on Vine leaves, but rather because it is so difficult to apply them without destroying the "bloom" which high-class Grapes always carry. True, there are instances where the crops are light or the bunches large, and therefore wide apart, in which syringing may be practised on a great amount of the leaf surface without touching a berry with the moisture; but they may be taken as exceptions. Where full crops of Grapes are the rule it is a most difficult, nay, almost impossible matter to syringe either with the insecticide or even clear water without disfiguring many of the berries. The question then arises, How, then, can we keep down this dreaded red spider?

My experience teaches me there is no better plan than the old one of thoroughly sponging the leaves with soapy water or XL All insecticide. If the work is taken in hand as soon as the slightest trace of the enemy is seen it seldom gives much trouble unless other details of culture are not well carried out. It has always been my practice to keep a sponge and tin containing insecticide in each range of vineries, and as soon as a suspicious looking leaf is noticed it is thoroughly sponged. If after a few days signs are apparent of insects in several parts of the house every leaf is sponged, and further trouble is not often needed. Of course, it is necessary to continually impress on the young men performing the work the importance of taking every care not to spatter or rub the bunches during the operation, as the slightest touch, though not noticed now, will be clearly apparent when the Grapes are ripe.

The practice of painting the hot-water pipes with sulphur is one which I never like to follow, except in extreme cases, for both Grapes and leaves lose their freshness after the operation. Instances sometimes occur when the practice is, however, a necessity. This is so when Vines are known to be badly infested, and time cannot possibly be spared to sponge the whole of the leaves. When this is the case mix in a dry state three parts flowers of sulphur with half a part of newly slaked lime, then add gradually a sufficient quantity of milk to form the whole into a thick paint, stir thoroughly, and apply to the hot-water pipes with a brush. Then heat the water in the pipes to boiling point, and keep it at that temperature for an hour afterwards, allowing the water to

cool down again. Follow this procedure for two successive nights, and every red spider in the house should be destroyed.

Moist, but not sodden, Vine borders, a moist atmosphere, with early, free, yet careful, ventilation, should be the order of the day where insect pests are troublesome; then if the Vines are not starved or overcropped there ought to be no difficulty in successfully combating the foe; but half-hearted measures in any respect will only lead to failure. I ought also to mention that young growth should be encouraged as much as possible, as a free circulation of sap helps to bring back a deep green colour to the disfigured leaves.—POMONA.

STRAWBERRIES IN POTS.

VARIOUS methods are pursued by cultivators to produce good fruits of the above in the most satisfactory and economical manner. Some growers layer runners from plants irrespective of their age, others from plantations of the previous autumn placed in rows 2 feet apart, the plants closely together in the rows. Others layer their plants from "permanent" plantations made the previous autumn, and, all points considered, the latter plan seems the best. The usual custom is to layer in small pots, afterwards transferring them into larger sizes, a plan attended with every success when properly carried out.

Our Strawberries in pots not having proved satisfactory for several seasons, led me to look well after the cause. The soil is certainly not of the best quality, being too light. In the spring, after the plants were taken inside and began to grow, they usually lost a good many of the previous season's roots, which was difficult to understand, for the plants had every attention paid them. On examination of some of them the balls of the plants as turned out of the small pots, appeared nearly entire in the centre of the compost in the fruiting pots, the roots emitted not being so numerous as desirable. At potting time the balls of the young plants were partially shaken out, but by the later indications not sufficiently so. Now I think this was our stumblingblock. Pressure of various matters probably prevented the whole of these small plants being repotted before they became matted. The consequence, as afterwards proved, was the roots not being sufficiently disentangled, and the soil firmly rammed around the young plants in the fruiting pots, prevented vigorous root action taking place in the limited time they had for growth.

When introduced into heat the following year, under more arid conditions, probably it would be difficult to keep the balls in the centre of the pots in a moist, growing state, hence the collapse of a portion of the roots. Last year we altered our plans, and went in for layering straight into the fruiting pots, a practice followed by certain good growers I believe for some time past, so it is nothing new. Practically I had hitherto no experience in the method, if I except a few plants experimented with two years ago. The compost was prepared the latter end of May, and consisted of the following mixture: six parts loam, one part wood ashes, one part cleanings from surface of Vine borders, three parts manure as prepared for Mushroom beds, three parts dried clay, half part bone-meal, with a 4-inch pot of soot per barrowload. The loam being of poor quality, a substantial compost is necessary if good results are expected. The fruiting pots, mostly 6 inches in diameter, were washed and carefully crocked, a small portion of soot being placed on the layer of rough turf over the crocks to stay the ingress of worms, and the pots were filled with the mixture firmly rammed by the time the runners were ready.

These were taken from plants of the preceding season, and some from a plantation made in March of the same year. The pots were carefully placed in position to suit the runners, but not shifting them about when once down on the ground. The runners were pegged on to compost contained in the pots, and when established the plants were detached, and from that date grew splendidly, the drainage in the pots being in no way blocked by being placed on the ground. In the autumn the pots were plunged in ashes in cold frames, exposed as much as possible, with a light covering in severe weather only. All went well, and in due course the plants were introduced into the houses, a moderate temperature maintained, raising it gradually, but not exceeding 60° at night until the fruits were set.

The plants flowered magnificently; the fruit was in due course thinned according to the variety, about a dozen being left on such as President. The fruits have been fine, as you will see by those sent for your inspection, the system adopted turning out satisfactory in every way. The varieties grown were Scarlet Queen, Duc de Malakoff, La Grosse Sucrée, and President. The fruit is mostly required the latter part of April and May; therefore the plants were not forced, so to speak, but had they been I feel sure they would have given a good account of themselves.

Considering the cold, wet autumn of 1894, with the adverse

ripening conditions, I have been surprised and much pleased at the success of the method, and shall henceforth continue to practise it. It claims as its advantages a great saving of time, no risk of plants getting root-bound ere they can be potted, and giving the crowns perched on the top of the soil every chance of thorough ripening. As the season is now at hand for preparing plants for the forthcoming year, I pen these lines with the thought that the lesson taught by these failures in the past may perhaps prove useful to some of your numerous readers in the future.—J. J. CRAVEN, *Allerton Priory*.

[The fruit sent was an excellent sample, being large and of good flavour, proving that the above system of cultivation has answered admirably.]

LABOUR-SAVING METHODS.

IF we can hit on or adopt labour-saving methods without militating to any material extent against the productiveness of a plot of ground, then we act wisely in doing so, and if it can further be shown that it is both possible to economise labour and actually improve the value of the crops by so doing, we are most unwise if we stick to the older and more expensive methods of culture. When, however, saving labour is the primary consideration, it need not surprise those who think of nothing else if their crops are partial or complete failures in most seasons. Sometimes it happens that what appears the most economical practice in the first instance actually turns out to be the most laborious and least satisfactory. I will give an instance. In many allotment gardens rows of stakes used for supporting Runner Beans one season are left standing to serve for the next crop.

The Beans are dibbled in and start into growth healthily enough. With the help of chemical or liquid manures there is no good reason why Runner Beans should not do well on the same site for two years in succession, but when later on it becomes necessary to support the old stakes with strong new ones to save them from being blown down wholesale, the saving in labour and stakes is a doubtful one. What gardener does not take special pride in his Onion bed? In some instances the same site is selected for this important crop several years in succession, and as this is very liberally treated as regards manuring it answers well, always providing the Onion maggot does not prove troublesome. The latter is a great bugbear in many gardens, and a complete change of site is desirable in all such cases accordingly.

A good bed of spring Cabbage is frequently of even more importance than Onions. What I mean is this—it would be better to have a moderately good crop of Onions and a good bed of spring Cabbage than a first-rate breadth of the former and a scarcity of the latter. This season Cabbages have been very scarce, and only quite recently has it been possible to buy any much under 3s. per dozen. There must have been far more failures than successes, and the former were largely due to the inability of the plants to stand a severe frost. What few really good breadths I have met with were nearly all growing on ground previously occupied by Onions, and this, though by no means a new idea, affords a good instance of a labour-saving and also profitable method of culture. All that is done is merely to surface-hoe and clean ground previously occupied by Onions, draw drills, water if at all dry, and then dibble-in the Cabbage plants.

Such varieties as Ellam's Dwarf Spring and Wheeler's Imperial are among the best that can be tried; they may safely be planted thickly, say 12 inches apart, in rows 18 inches asunder. The firm root run promotes a sturdy habit of growth, the plants when fully grown appearing all heart, whereas when put out on rich, deeply dug, loose ground Cabbage are rarely hardy, and form far too many large outer leaves. Much the same remarks apply to Broccoli. When these are grown to a great size on loose rich ground it needs only a moderately severe frost to destroy them wholesale; but if planted in succession to Strawberries and early Peas, without any digging, there will be fewer losses from frosts. Broccoli thus grown may not present a very imposing appearance—the grower might feel ashamed of them in fact; but this season they were so very scarce that it appeared to be quite an achievement to cut a few small hearts. Nothing was said or thought about the appearance of the plants that produced these.

It is sometimes said of certain men that they are "fond of making themselves work," this meaning that they go the wrong way about it, adopting methods that prove to be the most laborious in the end. If we dig the ground nearly cleared of a crop in dry, hot weather the chances are we bury dry soil and bring to the surface what little moisture there is left in the ground. To make matters worse, soil of a clayey nature quickly becomes hard and tough after exposure, and before it is fit for either planting or seed-sowing it requires to be baked by sunshine, after which rainfall or

the watering-pot will cause it to crumble sufficiently. If, therefore, we wish to follow one crop closely with another during the summer months, digging may well be avoided in most instances. Some of the best Celeriac, or Turnip-rooted Celery, I have ever grown was planted in close succession to early Cauliflower without any manuring or digging. The firm, yet by no means poor, root run favoured a sturdy top growth and the formation of extra fine "knobs" at their base.

It is much the same with Turnips. Poor ground does not suit them, while the other extreme, coupled with looseness, promotes a far too leafy top growth. I have frequently grown good Parsnips on ground that had not been dug for that crop, and of the many scores of such beds I have inspected this season the roots that present the best appearance were sown on ground that had not been dug since other crops were cleared off in the autumn and early winter months. Those who have taken the most pains with the preparation of the ground, and had, perforce, to wait the longest for the surface to crumble down finely, have not as a rule promising crops of Parsnips.

Do not think I am favouring methods of the "lazy" order generally. What I am constantly urging is the avoidance of set rules for all seasons and circumstances. Latterly I have my work cut out trying to prevent men carrying out what is locally termed "flat hoeing" among their rows of late-planted Potatoes. What they call "flat hoeing" I consider reckless, and in most cases uncalled for hacking. Heavy half-mattock hoes, and which I believe are made larger and heavier, specially for certain parts of Somerset, are driven deeply into the ground between and close up to the rows of Potatoes to the extent of bringing up some roots prior to "round hoeing" or moulding up. What little moisture was in the ground this heavy hoeing either brings to the surface or else further exposes it to the drying influence of easterly winds and fierce sunshine. Either very lumpy or imperfectly worked ground would, as a rule, be benefited by this hoeing, but in most instances where such work was being carried on ground was quite loose, and a surface hoeing or cleaning would have met the case. In addition to giving themselves unnecessary labour this "flat hoeing" will undoubtedly have hastened maturation, and a light crop will be the consequence. Thickly planted rows are the first to give signs of suffering from drought, and this is another penalty for over-zealousness, or trying to get too much out of the ground. Far better have planted fewer rows and save extra expense.

Of late years seeds have become considerably cheaper through the competition going on in every locality. One consequence of this is thick sowing. On all sides are to be seen crowded rows of Carrots, Onions, Turnips, Peas, Beans, and such like, and in the case of the three former at any rate this means so much extra labour in thinning, other ills also having to be reckoned with. By all means allow for various mishaps, but at the same time avoid sowing everything Mustard and Cress fashion. Very few growers care to thin out their Peas and Beans so freely as they ought to do, while in numerous instances the other kinds named are not yet thinned. Those responsible are or were waiting for the rain that failed to come just when wanted.

About the time these notes were penned gardens in all directions were receiving their daily drenching with cold water, and the question is, Were those so busily engaged rightly advised in the matter? Plants newly transplanted had to be kept alive; but is anything gained by the frequent watering of Onions, Carrots, and such like? Where the ground was well prepared the crops still look remarkably well without any aid from the watering pot or hose, especially when the surface has been kept in a loosened state. Applying the Dutch hoe among advancing crops, not merely for the purpose of killing weeds, but with a view to keeping the surface from cracking, is rightly calculated to do more good than watering; the latter, unless persevered in, actually doing more harm than good. Moisture supplied artificially soon evaporates in strong sunshine, and leaves the ground colder and poorer than it finds it. If a crop can have a thorough soaking, preferably with pond or warm softened water, followed by surface hoeing and a mulching of some kind, this might do good, the latter saving much hard labour.—W. IGGULDEN.

HARDY FLOWER NOTES.

LAST year I referred to some charming blooms of *Calochorti* kindly sent me by Dr. Wallace of Colchester. Their beauty induced me to attempt their cultivation in order to test their endurance in our more northern land. A small selection was made, and the bulbs planted in September in one of the warmest and driest places at command, this being a slightly elevated small plateau on a rockery facing south-west, and well protected from other sides. Some of them made growth rather early, and the

intense frost penetrated the covering of a few inches of litter which was placed over them when the severe weather arrived. This has caused the loss of some varieties, but the proportion which has survived is quite an encouragement to persevere with these charming *Mariposa Lilies*.

Planted beside them, and undergoing the same treatment, were a good many *Ixias*, *Sparaxis*, and *Tritonias*, which, with the same amount of protection, generally survive our ordinary winters in this locality, but all of which have succumbed to the disastrous frost of 1894-5. Thus I consider the *Calochorti* hardier than these fine flowers. The soil was light, and was enriched by the addition of some bone-dust, which I frequently find beneficial to bulbous plants. I think, however, that I have erred on the side of safety, and that a firmer soil would have given me larger flowers, as those sent to me from Colchester were finer than those grown in my garden. Very beautiful they are, however, and certainly add much to the interest of one's garden. Bright and cheerful has been the little *C. Benthami* (fig. 98, page 549), a dwarf species with rich yellow flowers produced several on a stem, and having the petals prettily covered with the hairs, which give so much additional beauty to the *Calochorti*. Less striking, but very fine also, has been *C. coerules elegans*, said to be synonymous with *C. Maweanus*, with white and purple petals. Taller and more effective than the latter was *C. lilacinus*, a pretty pink-coloured flower, which is said to have been figured in the "Botanical Magazine" as *C. uniflorus*, and to have the synonym of *C. umbellatus*. It is unfortunate that there is so much confusion in the nomenclature of the *Calochorti*. One could say something about other elegant and charming *Mariposa Lilies*, but it is not within the scope of these notes to deal exhaustively with them, and I must pass on with the conviction that those who have had the pleasure of seeing these flowers will not cavil at their favourable mention now.

We have *Iris*es over so long a period that there are few months in which there is none in bloom. At this season in particular many call for mention, and amid the throng of more showy species and forms I should like to single out the white variety of the elegant *Iris sibirica*. We have many more massive flowers of the same colour, and many with greater purity of colour, but *I. sibirica alba* is so exceedingly neat in size, and so graceful with its grass-like leaves, that many who have not grown it should make its acquaintance. Its very smallness makes it desirable for cut flowers, and the colouring of the falls, which deprives it of perfect purity, adds to the pleasure felt when closely examining the flower. This colouring is a compound of white, yellow, green, and blue, the blade being veined slightly with blue only; but as with nearly all the *Iris*es the colour is so distributed and shaded as to baffle an attempt at description. While in commerce comparatively plentiful and cheap, in gardens it is comparatively scarce. This is not due to difficulties in the way of its cultivation, as it will grow readily either in a moist or dry place. *I. sibirica* belongs to the sub-genus *Apogon*, and with its varieties seems to be found over a wide region.—S. ARNOTT.

THE PROFITABLE EMPLOYMENT OF GLASS STRUCTURES IN WINTER.

[Silver Medal Essay by Mr. PETER WILLIAMS, Oakfield, Nantwich.]

THIS is a subject which at the present time occupies the minds of persons whose business it is to grow produce for profit. Every endeavour is made to utilise conveniences at command to the best advantage, and the keen and ever increasing competition tax the ingenuity and experience of the grower to the utmost. Though the system of producing fruits, flowers, and vegetables for market has almost arrived at perfection, there nevertheless exists a period of about five months, during the winter and spring, in which expensive structures and appliances have to be comparatively idle.

An inflexible code of what, and what not, to grow for market cannot well be laid down and applied to every locality. Some assert they find cut bloom a lucrative business. By all means let them follow it up; others assert to the contrary. It no doubt depends to a great extent on local circumstances, in which persons must be guided by discretion and observation. The greatest obstacle growers have to contend with in the cut bloom industry is the foreign competition, as were it not for this far better prices would be realised. If we take the supply despatched from the Riviera alone, according to the reports cut flowers by the ton or tons were sent over to this country, and, as is usual, disposed of by auction in central towns, and from thence despatched to all parts of the provinces in a short time. Wreath-making and kindred work, where there is a good demand, is a very profitable business, but according to the testimony of florists there is not a tithe of the demand now as was the case a few years ago.

Taking, then, a general and impartial view of opinions as expressed, the state and prices of various products in the markets, the inference is that the floral business as a lucrative one is declining, while the supply is not decreasing. What, then, is to be grown? That is the question at issue, and it is one of vast importance as affecting gardeners—market gardeners especially. We need to grow a commodity among others for which there is a good demand generally, and at the same time one which the foreigner cannot well supply in a fresh and marketable condition. In conjunction with the housing of bedding Pelargoniums, Mushroom-growing, and devoting a little spare space *pro tem.* for Rhubarb, my chief object in this article will be to advocate the growing of Mustard and Cress as being among the most remunerative products which can be grown during the winter and spring months. Those who have an abundant supply of salads after a severe winter can appreciate the value of them, especially when four consecutive crops can be sown and cut off the same space of ground. Some gardeners near large centres are engaged in Mustard and Cress growing to an enormous extent, whence it is sent to provincial towns, often a great distance, owing to a deficiency in the home supply in those places. Gardeners generally have not realised the importance of this apparently insignificant commodity; but when made a speciality of it is almost incredible how remunerative an article it is, and once it has secured local favour the demand rapidly increases. It has an advantage over other crops in being quickly grown, and it must also be quickly disposed of, and it is here the home grower can give the foreigner the “go-by.” Radishes and Lettuces meet with a ready sale, but as those can be better grown in frames that is out of our province at the present.

STRUCTURES.—As there are endless systems of glass structures in vogue at the present time the same rule for the culture of things here dealt with can be applied to them, as space permits, and to any number as required.

The first, and in most general use, is the span-roofed house, usually from 8 to 10 feet wide, about 8 feet high, and varying in length. The interior is divided by a path, on each side of which is a 4 feet border, usually 3 feet from the ground, and supported by brick columns. In some the flooring of the path is a grating, under which the hot-water pipes extend the length of the structure. In others the pipes extend round the house under the borders. Others are constructed, even in modern times, with the old-fashioned flue, which are preferred by some as giving a more lasting and regular heat, which is so essential to the successful cultivation of plants which require bottom heat, such as Cucumbers, and Melons.

The second style of structure which will be mentioned is, as the previous one, span-roofed, the material difference being that they are about 25 feet wide, 12 feet high, and usually about 60 feet in length. Extending round the interior is a 4 feet border, as in the other under which the hot-water pipes extend. Along the side, and parallel with the border, is a path $1\frac{1}{2}$ foot wide, extending of course round the house. The portion in the centre is on the ground level. This is by far the most serviceable kind of house in the end, giving as it does a greater area in every direction. The primary outlay in construction is certainly a trifle more, but it is amply recompensed in a few seasons by the extra accommodation afforded. I have seen enormous crops of Tomatoes grown on the ground in these houses, which is contrary to the general theory that they must be grown close to the glass.

We take it that where growing for market is extensively practised there is a corresponding convenience for obtaining necessary materials as required for the various purposes. Before, however, dealing with the border and ground crops it will be necessary to utilise the space above. At a distance of, say, 5 feet from the top of the house, may be suspended a shelf, made of boards a foot wide and of convenient length, to allow of taking down when not needed, and fitted to rest on L brackets, which are screwed on to the supports of the roof, of which there should be one at every fifth sash. There must of course be sufficient room left between the glass and shelf for watering. On each side of the house, and between the top shelf and the border at equal distances apart, two other shelves may be fitted, each being 15 inches from the glass, and of the same width. Fitted along the sides of these shelves are zinc troughs, to carry off the surplus water.

On these shelves are placed bedding Pelargoniums, for which there is a brisk demand in the spring time. They may either be made into cuttings in August and placed into 60-sized pots, or put in boxes as cuttings, potting them off in January into 60-pots. If the former plan is adopted there is much less labour expenses attached to it as they are put into the pots, stood outdoors until rooted, and until frosty nights appear, when they can be transferred to the shelves, and there remain until brought out to harden in the spring. Given the top shelf to be 3 feet wide, and extending the whole length of the house—viz., 60 feet, the 60-sized pots being 3 inches in diameter, 2880 plants could be placed there. The other four shelves being each 15 inches in width would accommodate 4800, or a total of 7680; but making allowance for a little space between the pots, 7000 would be a safer estimate.

It is surprising how quickly a business in this direction will develop when the public becomes aware of it, and it is of immense advantage in every respect for the grower to be able to dispose of the plants retail. Thus the bronze, silver, and choice varieties sell readily at 4s. per dozen (pots of course included), and the scarlets and whites at 3s. per dozen. Placed on a wholesale market, the approximate average price for various

sorts would be about 20s. per 100. Even at that figure a good margin for profit is left, after deducting about 30 per cent. expenses. Once a stock of Pelargoniums is in possession, it should be kept up to allow of a number of cuttings being taken annually. Lobelia for edging purposes is also in good demand, and when sown about the end of July, pricked out in boxes, then potted in $2\frac{1}{2}$ -inch pots, will be good plants by the following spring, and realise at retail price 3s. per dozen. Thus thousands of useful bedding plants could be wintered and well established by spring at little expense or trouble, but would be one important item in the “profitable employment of glass structures in winter.”

Mushroom growing in glass structures is becoming more general, and is a step in the right direction, as the manure purchased will answer a double purpose in the houses before being used on the ground outside. To this end a good supply of suitable manure should be procured by the time the houses are cleared of Tomatoes. This is generally about the end of September, and as soon as convenient the glass and sashes of the structures must undergo a thorough cleansing, washing them with hot water in which softsoap or any disinfectant has been dissolved. The spaces under the borders are usually employed for the growing of Rhubarb and Seakale, but may be more profitably

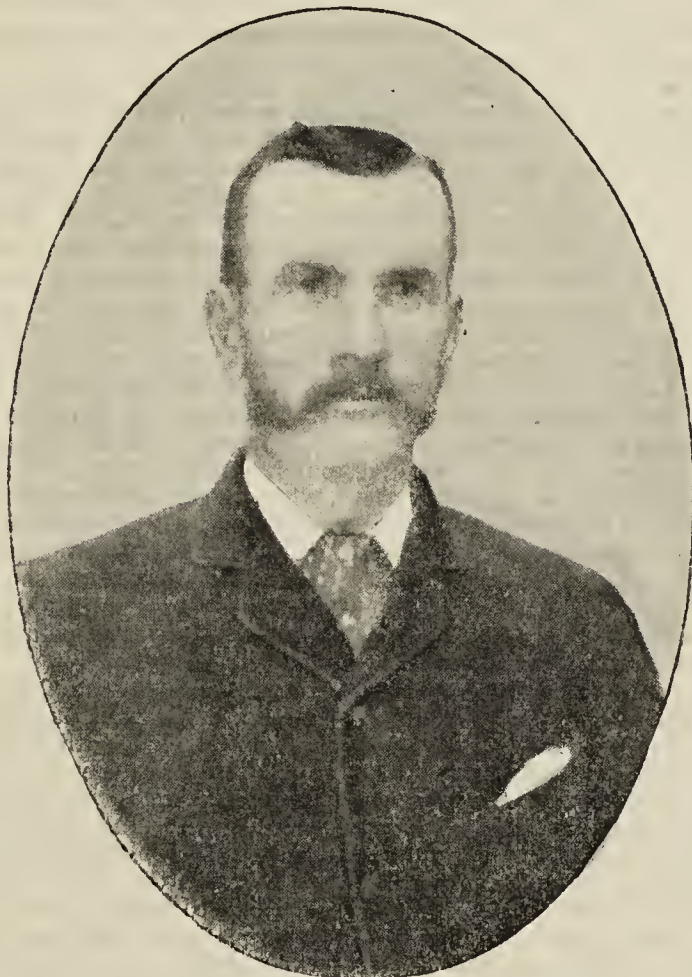


FIG. 96.—MR. PETER WILLIAMS.

employed in the growing of Mushrooms, though before making the bed it is necessary to place boards on their edge along the pipes, also along the path to keep the manure compact.

As Mushroom growing is so fully dealt with in Wright's “Mushrooms for the Million,” it would be useless for me to dilate on their culture here. I may, however, point out, in passing, that a less quantity of manure will suffice in glass structures, as artificial heat can be applied at leisure. Yet the other extreme must be guarded against—viz., that of making the beds too shallow, as the produce would not be so weighty nor of the best quality. A depth of 1 foot, soil included, may be named as being sufficient where the beds are made level. If severe weather should intervene and hard firing have to be resorted to, care must be taken that the bed next to the pipes does not become too dry, or failure may result. In the centre of the house and on the ground level the manure may be formed into ridges running parallel with the house; making them in this way will give a greater superficial area to forming one flat bed or beds.

According to the dimensions of the structure, the borders and paths occupy a space of 11 feet in width; there will then be 14 feet width left for this purpose. Making each ridge 2 feet wide at the base and of the same height would allow of six ridges being made, the remaining 2 feet being divided to allow space between the ridges for gathering the crops. The beds will need covering with hay or other material, and the same routine of attention as directed in articles on Mushroom culture. When grown in glass structures, however, they will require damping and watering oftener than when grown in unheated places.

Computing that Mushroom ridges of these dimensions will produce a clear profit of 9s. per lineal yard, we may sum up the total accrued from this source as follows:—Placing the length of the ridges in the centre at 55 feet (they could not extend the length of the house, as space for a path would be required at one or each end), the total length of the ridges would be 110 yards, giving a clear profit of £49 5s. The beds

under the borders would extend the whole length of the house; but as allowance must be made for the pipes and boards a safer estimation would be 7s. 6d. per lineal yard; the total length value £15. Thus a Mushroom crop on the foregoing principles would produce a net value of £64 5s.,—another and second substantial item in "the employment of glass structures in winter."

(To be concluded.)

IN THE MIDLANDS.

THE pen ran on to such an inordinate length last week that there was no space left for the reference that was intended to *Violas* and *Pansies* at Tamworth—not at the show there, which was briefly referred to on page 494, but to the extensive and diversified collection of Mr. William Sydenham. Tamworth is only eighteen miles from Birmingham, and if you happen to be there when the Midland night mail arrives someone will be sure to tell you it is one of the fastest trains in England, the distance being covered, from start to stop, in eighteen minutes, and if time is precious something less. Just before arriving at the station there is a splendid viaduct, and looking down from the train on the right large masses of colour are seen glinting between the trees. These, though the fact was not known to the narrator during his journey, are Mr. Sydenham's *Viola* beds.

To come in close contact with them the town has to be crossed, and they are found on the lawn of what may be described as an old-fashioned, comfortable, and commodious country house. The pleasure grounds are well timbered, and the lawns somewhat extensive—the larger being free from beds, the smaller full of them, and these full of flowers from early in April till nearly the end of the year. At the close of May they were simply sheets of colour—yellow, purple, mauve, cream, white, and various other hues, which only these flowers can produce in low masses. *Violas* are extremely attractive as tastefully arranged in sprays on sloping stands at exhibitions, but to appreciate their fullest charm and great decorative adaptability they must be seen growing as in this garden, which is made so beautiful and sweet by their presence.

It is not very easy to convey an impression of the numbers of *Violas* and *Pansies* grown in this Midland emporium. We first came to some thirty beds of the former, several round, and from 6 to 10 feet wide, each representing a separate variety, while larger beds are panelled. As a soft yellow for bedding *Viola* Ardwell Gem is still pre-eminent, though one named *Wonder*, which is brighter, and the flowers opening quite flat, is Mr. Robert Sydenham's favourite. Brighter still, brilliant and rich, are *Yellow Boy*, *Bullion*, *Lord Elcho*, and *Annie Hughes*; while softer and particularly charming in the mass is the newer *Luteola*, the upper petals pale, the lower of a deeper glow, and habit excellent.

For producing a mass of pale blue with a mauve tint all the season, it is doubtful if *Blue Gown* has any superior. The habit is procumbent, and the variety a persistent bloomer. William Neil, with a pink tinge, is a distinct and excellent bedder. Bessie Clark is of the same character as *Blue Gown*, but paler, the prevailing colour being deep lavender. Of somewhat the same colour we find *Aimée*, which produces a butterfly-like mass by its creamy white lower petals; while lighter still among the lavenders is the well named *Charm*. Though the habit of this is not so close as some others, in colour it seems to stand alone—a sort of pearly lavender and rayless. *Blush Queen* is also sweet and pleasing. Among the darker blues the well proved *Archie Grant* holds its own, while *True Blue* has many admirers, though some critical *violaists* do not consider it free from faults. *Hibernia*, purplish violet, made a rich display, and Mrs. Charles Turner is a good dark variety.

The well known and very pleasing Countess of Kintore has many descendants; bluish purple, more or less shaded with white. Of these Mrs. Bellamy, Mrs. Grant, The Mearns, and Iona are all effective, while the newer Mrs. W. H. Gabb, and perhaps the still prettier Mrs. Richard Hare, cannot be overlooked, the dark bars radiating from the golden eye over the pale porcelain ground having a pleasing effect.

The creamy *Sylvia* is one of the best for massing among the whites, as it is so dwarf and floriferous, but it has a formidable rival in the newer *Marchioness*, of similar colour, and very beautiful in the mass. Among the pure whites Countess of Wharnccliffe is particularly clean and very sweet, and the Countess of Hopetoun maintains its reputation. Mary Scott, white, with a faint blue suffusion, arrests attention by its delicacy, and is both dwarf and free; also compact and floriferous is Mrs. Scott, which is distinctly attractive by its yellow throat. For charm of flower, as regards form, the creamy rayless Mary Stuart has few, if any, rivals for supremacy; while for boldness of character the pure *Niphetos* commands attention.

The margined *Violas* have a beauty all their own, and of these *Duchess of Fife*, primrose, edged with bluish mauve, ranks very high. A bed of this, some 20 yards long, covered with myriads of flowers, presented a sight not to be forgotten. *Goldfinch* is of the same character, but a deeper yellow, and has a darker edge. Of the whites with blue edges of the *Skylark* type, *Blue Cloud*, *Blue Garter*, and *White Duchess* are all worth growing, as indeed are many of varied tints which cannot be named here. Nor can anything be said about those little gems, the *Violettas*, beyond the mention of *Sweet Mary*, *Rondda*, and *Marginata* as a dainty trio, delightfully perfumed.

The thirty beds of *Violas* mentioned only represented a small part of the collection. A strip, some 10 yards wide and 80 long, has been taken off the grass field next the carriage drive. This is divided into about forty half-moon-shaped sections with double *Daisies*, each section forming a bed of *Viola*. From another side of the field a still longer strip

has also been taken and devoted to the flowers. Then there is what appears to be a trial ground of *Violas*, set out into a hundred panels of about a yard square with *Daisies*, the panels containing many more than 100 varieties of the flowers for which they were formed. *Daisies* are employed as described, because they are found to be good barriers against wireworms and other underground enemies—a hint worth noting. Still traps are also used, and excellent they are—perforated tin cylinders about 2 inches across the top, tapering to a sharp point. These are filled with pieces of Potatoes, Carrot, oilcake, or other tempting baits, and thrust into the ground; a wire cross handle being provided for drawing them out at intervals and extracting the depredators. Thrusting sticks through Potatoes and burying them is a primitive mode of "fishing" for wireworms, as compared with the handy contrivance in question.

But to see all the *Pansies* and *Violas* we must go yet further. A walled garden is filled with *Fancy Pansies*—a splendid collection of some 300 varieties, and a rich display they made. One of the finest is *Tamworth Yellow*; beautiful also, each in its own way, are the following varieties, chosen from the great collection:—*Constance Steel*, *George Stewart*, *Bernard Doulton*, *Agnes Mabel*, *A. H. Murray*, *Andrew Frater*, *Clandeboyne*, *Cleopatra*, *Dr. Harrison*, *Emmie Stuart*, *John Taylor*, *Marmion*, *Mrs. Bagett*, *Mrs. D. Johnstone*, *Mrs. E. J. Martin*, *Mrs. J. D. Stuart*, *Mrs. John McConnell*, *Ralph Wardlaw*, *Rev. Gresley*, *Tamworth Gem*, *Tom Terry*, *W. H. Clarke*, *Wm. Watson*. The two dozen varieties named, if well grown, are not likely to disappoint their possessors.

Still, there are more plants, even acres of them, in the adjoining field, which also contains at least a hundred low span-roofed frames for propagating purposes. These are strong sensible frames, 6 feet by 4 feet, made of 1½-inch deal, sides about 6 inches high rising to a foot at the ridge, and the sashes moveable. They are excellent for their purpose, as such protectors would be for various purposes in gardens.

Pansies and *Violas* must be grown extensively in various parts of the country, or such a vast number would not be raised yearly as is found in this Midland emporium, which is after all only one of many supply establishments; but it is a large one undoubtedly, and it is apparent that nothing is spared to make it as complete and satisfactory as possible in respect to care in selection, nomenclature, and culture of these beautiful and diversified hardy flowers.

They are flowers for the million, and in all probability are destined to play a more important part in the decoration of home surroundings and public parks in the future than they have in the past, as there are few difficulties attending their successful cultivation and preservation. The short time at Tamworth was spent pleasantly, and the floral feast with the agreeable association of a happy family of flower-loving people will not soon be forgotten by—A CASUAL CALLER.

HARDY FRUIT PROSPECTS AROUND LIVERPOOL.

As in former years, I have again taken a few short notes on hardy fruit prospects in the Liverpool district. These will, I hope, be acceptable to readers, giving, as they do, a fair idea of crops in gardens where fruit is cultivated in various positions.

ALLERTON PRIORY.

The late severe gale, coupled with the long spell of dry weather, has, in Mr. J. J. Craven's opinion, spoiled what promised to be a good set. Trees of moderate vigour seem to be carrying a good crop. Strawberries and Red Currants are abundant, Black Currants an average. Raspberries and sweet Cherries a fine crop; Governor Wood, May Duke, Frogmore Bigarreau, and Bedford Prolific are the best among the latter. Espalier-trained Pears are thin, Durondeau and Pitmaston Duchess the best. Jargonelle and Comte de Lamy are the best bushes, the finest on south wall cordons being Beurré d'Amanlis, Doyenné d'Été, Glou Morceau, Josephine de Malines, Marie Louise, and Thompson's. Apples.—Bush: Irish Peach, Ribston, and Red Astrachan very fair. Pyramids: Keswick and Sturmer Pippin good, Warner's King moderate, Mère de Ménage fair. Standards: Warner's King and Lord Derby missed last season, but are this year laden with fruit. Pomeroy of Lancashire, Kerry Pippin, and King of Pippins are all good. Plums a very fair crop. Pond's Seedling on standard, Green Gage, Coe's, and Bryanston on east wall good; Coe's on west wall fair; Ozar and Hazlewood as bushes very fair. Whilst on the fruit topic I may remark that Mr. Craven's Grapes will again give exhibitors some difficulty, judging from present appearances.

CLEVELEY, ALLERTON.

Mr. Cromwell has within the last few years planted many young trees, which are now bearing freely. Apples are a good all-round crop, more especially Lord Suffield (which is always certain) and Ribston Pippin. Standard Pears a good average crop, and on walls they require some thinning. Plums flowered abundantly, but many fruits are turning yellow. This Mr. Cromwell attributes to cold winds when the blooms were fully developed, these interfering with proper fertilisation, and to the drought since. Cherries are a full crop, the foliage being exempt from the usual black fly. Currants are bearing well, especially Black; so also are Strawberries. A mulching of litter, which is placed between them, should help to mature the best crop seen for years. Gooseberries are good, and free from caterpillar. Raspberry canes suffered during the severe frost, many killed outright. Out of six varieties grown Fastolf has proved much the hardiest.

KNOWSLEY HALL, PRESCOT.

Apples are a very heavy crop, Pears quite an average, those bearing well last year being fruitless this. Cherries, Nectarines, Peaches, and Plums are good, Apricots average crop; Red and White Currants good, Black nil; Gooseberries very heavy, Raspberries under average, many canes being killed by frost. Strawberries a very heavy crop; indoors there is the usual supply kept up by Mr. Doe.

THE CALDERSTONES, AIGBURTH.

Mr. Tunnington has such a heavy crop of Apples that they have in most cases to be thinned, a practice which he carries out with various fruits, and which he fully believes pays for the trouble. Pears are on the whole a fair crop, while Peaches, Nectarines, and Damsons are a full one. Plums are better than they have been for some years past. Cherries of all kinds are literally weighed down with fruit. Currants, Gooseberries, and Strawberries are a heavy crop throughout, but the latter are suffering from drought, many fruits having failed to set perfectly are coming deformed. This is more noticeable in the case of President. Raspberries suffered during the frost, but on the whole are a fair crop.

COURT HEY, BROAD GREEN.

To enumerate all the kinds carrying good crops would take up much space. Mr. Elsworth always exhibits in fine form, and has this year a promise of abundance of fruit of all kinds excepting Raspberries, which suffered very much during the severe winter. The Strawberry crop may be mentioned as enormous, but like other places feeling severely the long spell of dry weather.

BLACKLOW HOUSE, ROBY.

Apples are a very good crop throughout. Pears very fair, Marie Louise, Beurré Diel, and B. d'Amanlis being heavily cropped. Currants are excellent, Strawberries good, but would have been much better with more rain, Cherries and Plums a fair crop. Raspberries planted twelve years ago and mulched each season, but not dug between, are as usual splendid. Old and young Gooseberry bushes are a picture. I always make a practice of mulching with stable manure 3 inches deep early in April, and since working on this plan have never seen a caterpillar. This year, not having sufficient at the time, the work was delayed until the second week in May. By that time the enemy had made its appearance, many branches being completely stripped of their leaves. After removing some of the best of the horse manure for hotbed purposes, the bottom of the heap was carted out in its damp state and spread amongst the trees, also between Raspberries and Black Currants. The ammonia in the manure at the time was very powerful, and whether from smell or what not, the caterpillars soon took their departure, there not being a sign of such, whilst the fine foliage, completely free from red spider, is a treat to look on, compared with what one sees in many gardens.

I am also convinced that where time could be devoted to the work, that a good soaking of liquid manure is highly beneficial to all kinds of outdoor fruit trees, given just before the blooms expand. Many trees treated in this manner are bearing heavy crops, whilst others in close proximity which have been left to themselves are not nearly so good, the blossoms appearing as if they are all withered. There is no doubt about the effect of the drought on many crops, but on Wednesday evening we had a few smart thunder claps accompanied by a perfect deluge of rain and hailstones, the weather being much cooler. To-day, Friday, there is every appearance of rain, and a few days' steady rain will help the fruit crops materially.—R. P. R.

HOW GARDENERS ARE MADE.

"INVICTA," on page 489, gives us a very impressive example of how gardeners are made, and in his fictional example shows clearly how they enter the garden, though many of them enter without being asked to pay a fee to unlock the door. A great deal has been written in the Journal about the gardener. I cannot quite agree with the idea that nine-tenths of the gardeners succeed in securing good places. My experience has been very much the reverse, and I do not expect the future holds out any prospect of improvement under the present system of making gardeners.

On an average the best places employ four young men, who are hoping some day to become head gardeners, and it stands to reason that only one can be employed as head in a place, so the other three have to find employment elsewhere than the garden; nor have they any right to expect head places, for reasons which I shall explain. First, they come into the garden at ages from thirteen to seventeen years of age; they as boys do what they are told, and very likely remain in their first place, say, three years. The gardener recommends them as journeymen, and here they remain one or two years, then go on to another place for a similar period, and in each of these places they have been constantly employed under glass. This journeyman wants a foreman's place, "under glass again;" he serves two or three years, and then, what do you see?—viz., "Mr. Peachgrower can with every confidence recommend his present foreman, John Growell, to any lady or gentleman wanting a first-class gardener; married when suited." This man may have been respectable, hardworking, and with a fair knowledge of indoor work, which he has performed to the satisfaction of the gardener. Has the gardener considered whether he is perfectly honest in recommending him as a first-class gardener?

What can young men brought up under glass know of practical

gardening? How can they manage a place? Certainly they cannot without a great many mistakes. Still, some manage to pull through in a way. If gardeners would unite, and agree to recommend no man, however respectable, unless he had passed through all the departments, acquired a general knowledge of all outdoor work, given some of his evenings to self-improvement, and had shown a love for his avocation, the glut in the garden market would cease.

The young man to recommend is the one who has come to the gardener at 9 P.M. with his specimens of wild flowers for naming, collected on his ramble round the hedgerows on a summer evening; who comes in on a winter evening to show some garden plans, to seek advice, or the solution of a geometric problem; who has asked to be shown the way to bud, graft, prune, nail, mow, and dig; and who has given up all other pleasures for his calling. This is the man we want. He may not appear so bright, good looking, or strong as the other; but still he is the man to be recommended. No gentleman ought to engage a gardener unless the applicant can satisfy him that he has served in a vegetable garden for not less than two years, and two in pleasure grounds and flower garden. I find after twenty years' experience that very few young men care for improvement. I have had many young men start, but few go on; some have and hold honoured places to-day, but the majority of them is wearing Her Majesty's uniform. I recommend a man only when I am sure he can manage what is required of him. It is not honest to recommend a man just because he has managed the houses well, and has kept himself respectable. I know a case where a gentleman wanted a gardener for 28s. a week and a house. A good man for the place was recommended, but the fortunate applicant never served an hour under a gardener in his life; in fact he had been employed to look after a pony, clean knives, boots, and do other odd work in a clergyman's household.

If every gardener would agree to enter each lad he starts in the garden on the understanding that he will only recommend him if at the end of his time he passes a fair examination in general gardening work, and in no case should he be called journeyman till he has done so. Then, when he enters as a journeyman, let him study for the foreman exam, and before taking a head place let him pass a final exam. Some persons may say, Who is to examine, and how is it to be done? Well, this can be done from centres. In the country head gardeners could be appointed, where young men could go, say, twice a year, and I am sure our leading nurserymen would help as far as they could. The final certificate to be given in London, Edinburgh, and Dublin, and a body of scientific men be appointed to draw up the form of examination papers.—SHIRBURN.

APPLES AND STOCKS.

FROM the good-tempered criticism of my note (page 520), Mr. Pearson would have us believe that the Paradise is the only fit and proper stock to use for unskilled gardeners, allotment holders, amateurs, and cottagers. He evidently pins his faith to this one stock, and considers all others are not fit to employ. He tells us how good the results are from the use of the Paradise, but he does not say how long the trees will continue to be satisfactory. I have been told that trees worked on Paradise stocks are not long-lived; but my age does not warrant my saying aught about this phase of the argument.

Mr. Pearson, too, confines his remarks to "garden trees;" but how about the grand standard and half-standard trees one sees so often in country districts that are worked on the seedling and Crab stocks? Surely it would not be wisdom to advocate the growing of "garden trees" only, and these worked on the Paradise stock. What we want to aim at is the production of fruit in quantity and of the best quality only. It matters not how it is obtained so long as it is procurable. I contend, in spite of Mr. Pearson's condemnation of other stocks, that the Paradise is not the only stock to depend on. My contention is that Apples will grow on trees worked on other stocks equally well as they will on the Paradise. Surely Mr. Pearson does not advocate the entire use of Paradise stocks, with their dwarfing and free-bearing propensities, for such varieties as Stirling Castle, for instance, which crops to such an extent generally as to preclude much freedom in growth?

From Mr. Pearson's own showing good results can be obtained from the use of the three kinds of stocks named. This is a distinct confirmation of the note I penned on page 475. I cannot believe that it is necessary to adhere solely to any particular stock. I write only from experience, and have good reason to advocate other stocks than the Paradise. As to persons requiring specially educating to manage trees worked on other stocks beside Paradise, I fail to see this. To me it seems a simple matter to get crops of fruit from trees grafted, or budded, on seedling stocks. If some fail to obtain fruit owing to following wrong methods of culture, that is no argument against the use of stocks that will give satisfactory results under rational treatment. I have carefully read and re-read Mr. Pearson's article, but yet fail to find aught in it to alter my expressed opinion that "it seems idle to pin one's faith to any one of the three named."

Some persons maintain that the Paradise stock has not vigour enough in it to withstand the influence of cold, wet, heavy soil, and give satisfactory results. I am also acquainted with a nurseryman, an exceedingly large fruit tree grower, who does not make use of the Paradise stock at all in the raising of trees, but pins his faith in stocks obtained from seedlings—pips from the cider mills. I do not think any Paradise stock could give better results than this man's trees.—E. MOLYNEUX.



EVENTS OF THE WEEK.—At the Drill Hall, Westminster, on Tuesday next the Committees of the Royal Horticultural Society will meet, and on the same day the Isle of Wight Rose Show will be held at Cowes. On the Wednesday the Richmond show will be held in the Old Deer Park.

WEATHER IN LONDON.—For another week we have had fine weather, though on Friday and Saturday last the mornings and evenings were rendered cold by the prevalence of easterly and north-easterly winds. During the early hours of Wednesday morning rain commenced to fall steadily, and at the time of going to press it had ceased.

WEATHER IN THE NORTH.—The drought continued till late in the evening of Monday, when gentle rain began to fall and continued the greater part of the night. Tuesday morning was fair, but dull, and more rain seemed probable. On the morning of Wednesday the 12th, and again on the following Friday, Potatoes were blackened by sharp frosts. On the former morning 17° frost on the grass is reported from Blair Athole.—B. D., *S. Perthshire*.

THE next meeting of the ROYAL HORTICULTURAL SOCIETY will be held in the Drill Hall, James Street, Westminster, on Tuesday, June 25th, when special prizes will be offered for hardy herbaceous flowers. Mr. Dyer is unable to lecture, and instead thereof a conversational lecture will be given on some of the most interesting plants in the day's exhibition by Professor Henslow.

WATERING NEWLY PLANTED TREES.—The earlier in the season trees are transplanted the less need there is of watering them, but as the season gets late and the weather warm and dry it is unsafe to transplant trees without first wetting their roots or watering them as soon as they are planted. Deciduous trees and shrubs can be handled with tolerable certainty, the later and drier the season is when they are planted the harder we cut in their tops. But we cannot very well do this with evergreens. Instead, we sprinkle them with water twice a day for a few days after planting, then once a day till we are sure the plants have "taken to the soil."

PROPAGATING HARDY PERENNIALS.—Many perennial herbaceous plants are propagated by taking up the roots and dividing them in the fall of the year. Others are easily propagated by sowing the seeds; but even these methods of propagation are not always rapid enough for the desired increase of any particular plant. It is not generally known, says a writer in a transatlantic contemporary, that plants can be made by cutting up flower stems. For this purpose the flower stem is allowed to grow up to a blooming point; but when that is reached the flower buds must be entirely cut away. This throws more vital energy into the flower stem, and well-developed buds form in the axils of the leaves. In a few weeks, after the flowering heads have been pinched out, the flower stalks may be separated for cuttings. Pieces with two or three buds are sufficient. In this way such plants as the hardy Phlox may be very rapidly increased. The various kinds of Lilies can be propagated in the same manner.

"MEN AND MANNERS."—Under this heading, on page 513, "Observer" details a few remarks which I read with interest, and as I happen to be one of the craft whom his remarks directly concern, I feel constrained to ask him a question on a point on which he omitted to touch—that is, which is the proper way for a gardener to salute his employer? I see a good many gardeners raise their hat to their employer or members of his family; but I have it on the authority of a French governess that they ought not to do so, because by so doing they place themselves on the same social level as their employer himself. By merely touching their hat or cap with their finger they make the distinction between employer and employed. Is this so? I myself am a gardener, and daily meet friends and relatives of my employer, both within the precincts and on the public road, hence I am anxious to know if I commit a serious breach of etiquette by raising my hat when I meet them, or if I should simply touch it and no more. If "Observer" or any reader of the Journal will enlighten me on this point they will greatly oblige an—IGNORAMUS.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At the instigation of N. N. Sherwood, Esq. (Renter Warden), the Worshipful Company of Gardeners has given a donation of £5 5s. to the funds of the Gardeners' Royal Benevolent Institution.

THE WOBURN EXPERIMENTAL FRUIT FARM.—About thirty gentlemen visited the extensive series of experiments on Tuesday last on the invitation of his Grace the Duke of Bedford and Mr. Spencer Pickering, F.R.S. They were greatly interested and hospitably entertained. The publication of a report of the work in progress must be deferred till next week.

NEWCASTLE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.—At the last monthly meeting of this Society there was a good attendance, and Mr. Larke, North Dene, Gateshead, occupied the chair. Mr. J. Holmes, of the Fleming Memorial Hospital, Newcastle, read an instructive paper on "Hardy Herbaceous Plants," which was very much appreciated, illustrating and adding interest to his remarks by numerous specimens.

LONDON RAINFALL.—Since the commencement of the present year the total rainfall in London has been very little over 5 inches, or only half the average quantity. Last month the rainfall in London was only 0.34 inch, or little more than one-sixth of the normal amount. From the beginning of June up to last evening the total fall in London was only two-hundredths of an inch, the average quantity for the expired portion of the month being rather over an inch.

HAMPSHIRE STRAWBERRIES.—The Strawberry season in Hampshire is now at its height, as indicated by the fact that 2000 baskets of Strawberries were received at Waterloo Station on the 7th inst. from the Swanwick district. The Hampshire growers now send the greater portion of their fruit in neat cross-handled baskets, with the result that it reaches the market in good condition, and consequently commands a more satisfactory price than was frequently the case when a more rough and ready system of packing was adopted. Immense quantities of Strawberries are also being received from France. On one day, says a contemporary, 3000 packages from Havre and St. Malo were placed on the London market.

SALE OF PLANTS.—The well-known collection of specimen stove and greenhouse exhibition plants grown by Mr. J. Dyer for Mrs. Marigold, Park House, Edgbaston, was disposed of under the hammer on the 12th ult. by Mr. John Pope, King's Norton Nurseries, as Mrs. Marigold contemplates leaving her present residence shortly. For several years past this collection of plants has figured prominently amongst the local shows. Mr. Dyer, who has been for about eleven years in his present situation, is about to enter business on his own account at Northfield, and has already erected two or three glass structures. It is somewhat remarkable that within the space of a few weeks two of the most prominent local exhibitors should be lost to the Birmingham and Midland Counties Horticultural Society; firstly, in the person of Mr. J. Palmer, late gardener to W. Bown, Esq., Beech Lane, Harborne, and whose fine collection of Orchids was sold a few weeks since, as notified in the *Journal of Horticulture*. It may be mentioned that amongst the several fine specimens of Palms sold at Park House a magnificent plant of *Kentia Fosteriana*, 12 feet high, passed into the hands of a well-known ducal exhibitor of plants in the Midlands.—G.

HORTICULTURAL CLUB.—The last dinner and conversazione for the season 1894 and 1895 was held on Tuesday last at the Club Rooms, Hotel Windsor, Victoria Street, Westminster. The chair was occupied by Mr. Geo. Gordon, and amongst those present were Messrs. Geo. Paul, George Laing Paul, James Walker, A. H. Pearson, J. Edward Cockett, H. Selfe Leonard, T. W. Girdlestone, the Rev. J. H. Pemberton, and the Secretary. The subject for discussion was "Single Roses for Garden Decoration," and was opened by an interesting paper by Mr. Geo. Paul, jun., who dealt with some of the most valuable Roses for this purpose, both species and hybrids. A very animated discussion followed, in which most of those present took part; and a desire was expressed that more prominence should be given to this class at our earlier Rose shows, as the Roses belonging to it are mostly over by the beginning of July, except it may be in the north of England. A cordial vote of thanks was given to Mr. Paul for his paper, which will, we believe, appear in the "Rosarians' Year Book," 1896. We believe there is in contemplation to revive the excursion, and it was proposed that it should this year embrace one or two of the market gardens in North Finchley, and a visit to Hatfield House and gardens.

— GARDENING APPOINTMENT.—Mr. W. J. Gilks has been appointed head gardener and Orchid grower to H. Smith, Esq., Summerhill, Kingswinford, Staffordshire.

— IRIS MADAME CHEREAU.—To those who are fond of the Iris family, this ought to be added. It is singularly beautiful and chaste in colour—white, margined with blue. The blooms individually are not large, but freely produced on rather tall stems.—E. M.

— VEGETATION IN FRANCE.—The hot, moist, and clammy weather in France is pushing forward vegetation by leaps and bounds. This is causing anxiety to Potato growers, who fear the appearance of the fungus; hence the very prudent cultivators have already commenced spraying with the Bordeaux mixture.

— BLENHEIM PALACE GARDENS.—By permission of the Duke of Marlborough, Blenheim Palace and Gardens were opened to the public on the 3rd inst. They will be open every Monday, Thursday, and Saturday until further notice, from noon until 4 P.M. on Saturdays, and from noon until 6 P.M. on the other two days of the week.

— SHIRLEY AND DISTRICT GARDENERS' AND AMATEURS' ASSOCIATION.—A meeting of the above Society was held at the Parish Room, Shirley, Southampton, on Monday, 17th inst., Mr. B. Ladhams, F.R.H.S., presiding over a large attendance of the members. Mr. J. E. Axford, florist, Fair Oak, gave a very interesting and instructive paper on "Rose Culture Under Glass," and a long discussion ensued, which was joined in by a number of the members.

— UPROOTED TREES IN THE TEMPLE.—On Friday morning, June 7th, the Temple gardeners were engaged, says the *Daily News*, in replanting the three Plane trees in Essex Court, which had been uprooted and laid prostrate on the previous afternoon by a sudden gust blowing through the archway leading into that square of dingy brick buildings. The trees were young, but the force of the draught was still remarkable, for they had attained to a height of some 40 feet, and the stem of the stoutest is 13 or 14 inches in circumference. On the same day another Plane in Pump Court was nearly overthrown from a like cause. The trees have now been provided with props or wire ties.

— EUROPEAN GARDENERS AND THE UNITED STATES.—The "Florists' Exchange" says that it is interesting to note the number of arrivals of gardeners in the United States from other countries. During the year ending 30th June, 1894, which is the latest period for which the statistics have been made up, there arrived from Bohemia, 2 gardeners; from Hungary, 6; from Austria, 6; from Belgium, 2; from Denmark, 19; from France, 13; from Germany, 160; from Greece, 16; from Italy, 25; from the Netherlands, 22, one a woman; from Norway, 5; from Russia, 3; from Sweden, 20; from Switzerland, 14; from Turkey, 2; from England, 146; from Scotland, 38; from Ireland, 54; from Columbia, 2; from China, 7; from Japan, 3; from Australia, 3; from the Hawaiian Islands, 1, making a total of 569, 535 of whom, including one woman, were under forty, and the remainder over forty years of age.

— DEATH OF MR. R. C. KINGSTON.—Many of our horticultural friends will hear with regret of the death of their old friend Mr. R. C. Kingston, the well-known and highly respected head gardener and estate manager of Brantingham Thorpe, who, after a short illness of only a few hours, passed peacefully away on Thursday, June 6th. Mr. Kingston was born in the East Riding of Yorkshire in 1818, and after receiving a good education he went as under gardener at Stapleton Park Gardens. From Stapleton our friend went as foreman to Chiswick, where he served for some years with great credit, and in the year 1841 he took charge of the gardens at Brantingham Thorpe, then owned by the late R. Fleetwood Shaw, Esq. In a very few years Mr. Kingston became well known as a leading horticulturist and botanist, as well as a most successful exhibitor at the leading shows in the county. At that time the collection of Orchids, stove and greenhouse plants, and British and exotic Ferns at Brantingham Thorpe was one of the best in the north of England. About thirty years ago the estate passed into the hands of Christopher Sykes, Esq., and during that time much of the estate has been remodelled and improved. To one and all he was ever kind, courteous, and sincere, and many of his gardening friends will recall with pleasure the cheery and hospitable welcome they always received at his hands. On Monday last, in the presence of his family and his late master (C. Sykes, Esq.), as well as a very large number of friends, the remains were quietly and unostentatiously laid to rest in the beautifully situated churchyard at Brantingham.

— FROST IN JUNE.—At Ridgmont 7° of frost were registered last Saturday night, and Potatoes were injured in various parts of the country.

— FROST IN HAMPSHIRE.—On the morning of Thursday, 13th, quite a sharp frost was experienced in the valleys around here. In several instances Scarlet Runner Beans, Vegetable Marrows, and in one instance Potatoes, exhibit decided effects of the visitation. Especially are the leaves of the first-named blackened, which cannot fail to give a check to direct growth. Here in the garden the thermometer did not fall below 37°, but the situation is high and comparatively dry.—E. MOLYNEUX, *Swanmore Park*.

— WEATHER IN THE VALE OF EVESHAM.—A severe frost visited this district on Saturday morning, 15th inst., doing a considerable amount of damage on the low lying lands to Vegetable Marrows, Cucumbers, Potatoes, and other things susceptible to frost. Fruit does not appear to be affected by it, but would be greatly benefited by a good rain. The crops all seem parched with drought, and it has caused the Kidney and Runner Bean crops to become almost a failure. The early Potatoes appear to be ripening, yet are too small to commence digging.—ALFRED G. GROVE.

— FROST IN CO DURHAM.—On the morning of June 13th I registered 3° of frost about 5 A.M. The sight was such as I have never seen before at midsummer, the fields being covered with white frost. Potatoes are very much blackened; tender annuals, such as Perillas, African and French Marigolds, and Dahlias are in a great many cases killed. The young growth on Rhododendrons is also damaged, and in exposed places killed outright. This is very disappointing after the fine spring we have had, and surely beats the record.—A. BENTLEY, *The Gardens, Eshwood Hall, Durham*.

— THE COTTAGER'S CALENDAR OF GARDEN OPERATIONS.—This very compact calendar, which was originally compiled by the late Sir Joseph Paxton, has been revised and adapted to the requirements of cottagers and allotment holders. The operations for the different months of the year are described, and though the form naturally leads to some repetition, the work has been thoughtfully done. There has been no padding out; but, on the contrary, the desire for compression seems to have been kept well in view. Vegetables, fruit, and flowers are included throughout, and the selections are well adapted for cottage gardens. Sensible notes are given on pruning and most other operations. Chapters are given on manuring (too compressed), vegetable and fruit cookery, and insects (illustrated). The "Calendar" is packed with information from end to end, and being cheap, is well suited for distribution amongst cottagers who desire to have the gardens attached to their houses attractive and productive. It is published at the "Gardener's Chronicle" office, 41, Wellington Street, Strand.

— "IN A GLOUCESTERSHIRE GARDEN," by the Rev. H. N. Ellacombe, M.A.—This is not only an entertaining but a useful book. The style is clear and direct, and while the poetic aspect of gardening and the beauties of Nature are not lost sight of, there is a complete absence of that vague and dreamy spirit of rumination which is only too common in works of this character. Every page bears the stamp of a versatile and widely cultured mind, which, while deeply tinctured with the old classical learning, does not dwell in misty regions of the past, but lives and breathes in the full light of modern knowledge and modern science. In this book there will be found no musings, no humorous anecdotes of university, clerical, or village life, none of the loftiness of the philosopher, and, above all, nothing of the pulpiteer. With the exception of a very short chapter at the end there is little allusion to matters ecclesiastical, and throughout the tone is that of an eclectic reader with a strong partiality for horticulture and botany. The author seems to have thoroughly assimilated all that is of general interest in the received authorities on science and horticulture in so far as they bear upon his subject, and puts it forth in the most popular and intelligible form. Inasmuch as there is no attempt at fine writing, the style being equally pleasing and instructive everywhere, no single extract could adequately represent the peculiar excellence of the book. We refrain, therefore, from quotation, and say that those who follow gardening seriously and intelligently cannot fail to obtain satisfaction from its perusal seeing that it is written with a very direct purpose by an enthusiast whose enthusiasm never betrays him into either dulness or obscurity. The form in which it appears is in the highest degree tasteful, and reflects great credit upon the publisher, Mr. Edward Arnold, of Bedford Street, Strand, London.

— It is said that Ferns which grow in rank profusion in Western America are now used largely for paper making at the Alberni Mills.

— PRESERVING THE COLOURS OF FLOWERS.—Ammonia in the air is the main cause of flowers, when cut and dried, losing their colour. This may be prevented, says Herr Nienhaus, by pressing specimens between paper which has been previously saturated with a solution of 1 per cent. of oxalic acid in water. In this way the true tints of even the most delicate Poppies may be preserved.

— LILACS AT THE ARNOLD ARBORETUM.—One of the most attractive floral displays ever made in an American garden was seen in the Arnold Arboretum when the Lilacs were in bloom. About 120 varieties of *Syringa vulgaris* were in flower. The collection occupies a wide bed, stretching for more than 900 feet up a rather steep slope, along one of the principal drives, and the colour of the flowers is well brought out by a high green slope behind and parallel with the bed. Among the most attractive of the varieties in this collection are Marie Lagrange, white; Rubra insignis, dark red purple; Trianoniana, purple; Madame Briot, red purple; Geheimath Heyder, pale reddish blue (very large compact panicle); Alba grandiflora, white; Charles X., dark red purple (an old variety, but still one of the very best); Emil Liebeg, pale blue; Bertha Dammann, white; Virginalis, white; Ambroise Verschaffelt, flesh colour; Gigantea, mauve; Carsli, dark purple red; Maxime Cornu, pale blue (double); A. Lavallée, pale blue (double); Lamarck, pale blue (double); Ludwig Späth, dark red purple (very late); Philamon, dark red purple; Alice Macguery, purple red; La Tour d'Auvergne, dark red purple (double, very large compact panicle); Félicité, pale flesh colour (semi-double); Madame Moser, white; Tournafort, dark purple in the bud, opening bright blue (double).—("Garden and Forest.")

— PEA KING WILLIAM.—Two years since Mr. C. Orchard of Bembridge, Isle of Wight, sent me a single Pea haulm on which was growing half a dozen pods of Peas, to show what was apparently a good early new Pea. Taking care of the few green pods I managed to save enough to obtain a few seeds for use this year. The result is one of the finest second early Peas in cultivation. I cannot call it a first early Pea because sown on the same day as William I. it is fully ten days later than that variety. King William, like other varieties, varies in height. Sown in pots on March 6th and planted on a sunny border the haulm has grown 5 feet high, and is now bearing fully twice as many pods as William I., several containing eight Peas of an exceptionally dark colour, and for an early Pea of a really good flavour. Sown in the open on March 11th on the same border the haulm is quite a foot shorter, and consequently a lighter crop will be the result. Sowing William I. in pots on March 6th we gathered the first dish June 7th. King William sown on same date was ready June 17th, as previously stated. As a close succession to William I. or any other early Pea I regard King William as a grand acquisition to the early Pea list.—E. MOLYNEUX.

— PÆONIES.—There was a big show of these noble hardy flowers at the Drill Hall on the 11th, but I saw nothing there so striking as was found at Mr. J. Walker's flower farm at Ham a day or two after, when the door of a huge packing shed being opened I saw the entire floor literally covered with big masses of double Pæonies, gathered and bunched in half dozens, ready for packing for market. All these flowers were standing in water, for it is a good plan to so place them in water so soon as cut, as the stems then get well charged with moisture before going to market. There were pure white, canary white, fleshy pink, rose, red, and crimson, though the colours are not so many, nor are the sorts so bewildering as were seen at the Drill Hall. It is not a matter for surprise that these grand flowers sell well, as they really are beautiful and enduring. I did not observe any of the loose, flaccid single varieties. They are beautiful enough on the plants, but do not seem so well fitted for market purposes. Of course, these Pæonies are grown at Ham in immense numbers. They seem to like the deep sandy soil found there, but it is needful to have it well fed, and not to be sparing of top-dressings after the plants begin to age. A couple of years from planting usually has to elapse ere really fine flowers are obtained, and after a period of some six or seven years then it may be needful to lift, divide and replant. That work should always be done early in the autumn, so as to enable new roots to be made before the winter sets in. Those who grow Pæonies in gardens should be content with a few, say a dozen good sorts, and nowhere do they look better than fronting a shrubbery. Still, there they cannot get the same generous culture which they so well repay.—D.

— A FINE DOUGLAS FIR.—A large tree of Douglas Fir, 36 inches square by 60 feet long, was recently loaded (says the "Western World") on two flat cars at the Brunette Mills, New Westminster, from Montreal for use by the Harbour Commissioners for the construction of a bridge. In this immense baulk, which was the prettiest ever cut at the mill, there was neither knot nor blemish. It is claimed that no larger timber was ever cut in the State, though some may have exceeded it in length.

— ENCOURAGE THE CHILDREN.—What a pleasure it is to a father or mother who is fond of flowers and gardening to have their children take an interest in Flora's treasures. How delightful it is to walk in the garden in the cool of the evening with a warm, soft little hand in yours, leading you to where the favourites grow, a pair of interested and laughing eyes flitting between yours and the blossoms, and a sweet little voice piling you with questions and comments about the Pansies, the Roses, the Poppies, and the flowers. While all children love flowers, some are more emphatic than others in their fondness for them, for the love is stronger. At Dorset many children come to us for flowers; they want a few for the church, or the school, or some particular friend, or a funeral, or not infrequently for themselves, for they love them. And they all get some. Be they rich or poor, young or old, stylish or in tatters, acquaintances or strangers, it is immaterial to us, they get some flowers. The other day we came upon a ten or eleven-year-old boy down on his hands and knees smelling the Pansies in the borders; he was all alone, and a stranger to us. On inquiry we found he lived some three miles away and came here after school hours alone and on purpose to see the flowers. Such children should be encouraged.—("American Gardening.")

— THE ROMANCE OF PLANT LIFE.—This has been the subject of special study by Dr. D. Morris, says a contemporary, and the two lectures he has arranged to give before the Fellows of the Royal Botanic Society have created much interest. At the first of the two lectures Dr. Morris discussed, with his usual ability, some of the most striking features of the vegetation of the Canary Islands. Chief among these were the singular Dragon trees, which were closely related to trees distributed over widely separated parts of Africa. They were regarded as the survivals of a very old African flora, which flourished on that continent at a time when the climate was much colder than at present. It was suggested by Balfour and others that, as the ice in the Ice Age gradually receded northward and the climate got warmer, these plants were driven to higher regions, and hence, on the high peaks of Central and South Africa, the Canary Islands, the slopes of Ruwenzori, and the mountains of Abyssinia, the remains were found at the present day of an old African flora which, by climatic changes, had been gradually driven out and replaced by more tropical plants. The study of these and similar plants afforded one of the most interesting problems in botanical science. Reference was made to the Canary native Palm which incidentally led up to a most interesting account of curiosities occurring in Palm life.

— PEACHES AT HAM.—Mr. J. Walker's very fine range of Peach houses at Ham Common are to all interested in Peach culture just now, and will for the next few weeks, well worth a visit. There are nine of these fine houses, each 24 feet wide and 180 feet long, whilst they rise to 12 feet in the ridge. The trees within are all on 4 feet stems. These, as showing the variations found in stocks, are of different dimensions, although in most cases the heads are equally large. The trees are planted as near to the sides as well can be, and at distances apart that vary, some being fully 25 feet, yet having heads that meet each other, whilst others are from 14 to 16 feet apart. Not a few very large trees were lifted and replanted last autumn, a thinning out having become necessary. These are all doing well, and carrying some fruit, but next year without doubt they will bear very fine crops. Although the soil is made very firm and not rich, yet a too luxuriant growth is in some cases developed that cannot be more effectively checked than by lifting and replanting. Alexander, the earliest Peach, has given a good crop, and is being followed by Waterloo and Hale's Early. Then will follow a dozen others of the best varieties, but colour is in marketable Peaches a matter of the first importance, as it enhances the value of the fruit from 10 to 20 per cent. Of Nectarines Lord Napier, all along one side of a house, is a superb sight. Early Rivers is, of course, the earliest, and colouring of its fine fruit superbly, but it is not yet largely planted. Several other fine varieties are grown. In almost every case the wires are filled with growth and leafage from end to end, and yet it is evident that although some trees here cover nearly 300 square feet, they could soon fill double that area if they had room. However, the house should be seen to be properly appreciated.—A. D.

NITROGENOUS MANURES AND THEIR EFFECT.

THERE are ten elements absolutely essential for the production of plants. These are nitrogen, hydrogen, oxygen, carbon, sulphur, phosphorus, potassium, calcium, magnesium, and iron. It is to the first-named element (nitrogen) that I wish to call attention, and I will endeavour to show how important it is that we should become well acquainted with it. Nitrogen was discovered by Rutherford in 1772, and is a colourless inert gas, slightly soluble in water. It occurs free in the atmosphere, of which it constitutes 79 per cent., or 11 lbs. to every inch of the earth's surface. The nitrogen and oxygen of the atmosphere combine under the influence of electric discharges, nitrous acid being formed, which is converted into nitric acid by the action of ozone or peroxide of hydrogen. It forms several compounds useful to those engaged in horticultural and agricultural pursuits. Ammonia is a compound of nitrogen and hydrogen.

Owing to the complicated changes of nitrogen in the soil, it is of the utmost importance that we should study the natural sources of its loss and gain there if we wish to become well acquainted with the difficult question of soil fertility. How does the soil obtain nitrogen in a natural way? The presence of organic nitrogen which is found in the soil has been formed by the decay of vegetable and animal matter. It is also brought down in rain as organic nitrogen, ammonia nitrates, and nitrites. The amount obtained in this way was determined at Rothamsted to be 4½ lbs. per acre per annum. But this varies in different parts of the country. It is estimated that an acre of fertile soil contains from 6000 to 30,000 lbs. of nitrogen in the first 18 inches, but the larger half is in the first 9 inches, and the quantity decreases the deeper we go, 96 per cent. of it being present as organic matter.

From the above it seems that we have an inexhaustible supply of nitrogen in the soil, when our most exhaustible crops (Turnips) only remove about 150 lbs. per acre. But probably not more than 5 per cent. of the nitrogen in the soil is in the form of nitrates, and thus available as plant food. Fallow land always contains a much higher percentage of nitrates than land under crop; for instance, the first 27 inches of soil over an area of one acre of fallow contains from 33 to 60 lbs. of nitrates; land under crop only contains from 5 to 14 lbs. in the same bulk of soil. This shows how quickly the nitrates are taken up by a growing crop.

These nitrates are most abundantly formed during the late summer and early autumn months, when the soil is warm, especially after cereal and other summer crops are removed. Nitrates, it should be remembered, are very soluble in water, and if light sandy soils are allowed to remain bare during the winter a very large proportion of this valuable manure will be washed out by the heavy rains. To prevent this loss some kind of winter crops should be grown, as these take up the nitrates. If the crops are of no other use they can be dug in during the early spring, and will then form a good organic manure which is beneficial to light sandy soils, as it helps to make them more retentive.

I have stated that our most exhaustive crops remove about 150 lbs. of nitrogen per acre, and from experiments at Rothamsted it was found that from 35 to 45 lbs. of nitrates per acre were washed out of the soil into the drains per annum, making the total loss of nitrogen about 157 lbs. per acre in one year. Gardeners must bear in mind that this loss goes on the same in garden soils, and therefore to keep it in a fertile condition we must replace this loss by the application of some nitrogenous manure, such as the following.

Ammonium Sulphate.—This is a compound of ammonium and sulphuric acid. It contains 20 per cent. of nitrogen, equal to 25 per cent. ammonia. This is the most concentrated of all nitrogenous manures, and is very soluble in water.

Potassium Nitrate.—This is a compound of potash and nitric acid, and usually contains 13 per cent. of nitrogen, equal to 16 per cent. ammonia. It also contains about 45 per cent. of potash. It is a very valuable manure. Any gardener can increase the supply by the following process:—Make a compost heap of vegetable matter, such as garden refuse, and mix with it a fair proportion of wood ashes and lime. The wood ashes, which are rich in potash, can be obtained by burning all fruit tree prunings and hedge trimmings. The lime added helps to decompose the organic matter and liberate the nitrogen, which then chemically combines with the lime; but another change takes place by which the nitrogen leaves the lime and combines with the potash, thus forming potassium nitrate. The compost heap must be frequently turned so that all parts become thoroughly oxidised.

Sodium Nitrate.—This is a compound of soda and nitric acid, and contains about 15 per cent. of nitrogen, equal to 19 per cent. ammonia. It is very soluble in water, and contains its nitrogen in a form that can be immediately appropriated by plants.

Peruvian Guano.—This manure varies from 1 to 12 per cent.

of nitrogen. It is a more general manure than the preceding, as it contains nitrogen in three forms. 1, As organic nitrogen; 2, ammonia; 3, nitrates, and is, therefore, a more lasting manure.

Dried Blood.—Blood contains nitrogen equal to from 12 to 16 per cent. ammonia, but it is slower in action than any of the above manures, as it has to undergo decomposition before it is available as plant food.

Fish Guano.—This is also a slow acting manure. It contains nitrogen equal to from 8 to 10 per cent. ammonia.

Farmyard Manure.—This is the most general of all manures. One ton contains from 9 to 15 lbs. of nitrogen, besides other valuable manurial ingredients, such as potash and phosphoric acid.

Animal Urine.—One ton of this from horse stables contains 36 lbs. of nitrogen; from cows, 30 lbs.; and from sheep, 38 lbs. Most gardeners can get a good supply of stable manure, and many persons have noticed the black streams draining away from it. If the value of the fertilising ingredients of this liquid contain was better known it would not be allowed to waste as it does. This is the analysis of it in 100 parts. Water, 82 per cent., and dry substance 18 per cent. The dry substance is made up as follows:—

Ash	...	...	...	10.7	Magnesia	...	...	...	0.4
Nitrogen	...	...	...	1.5	Phosphoric acid	...	...	...	0.1
Potash	...	...	...	4.9	Sulphuric acid	...	...	...	0.7
Lime	...	...	...	0.3	Silica	...	...	...	0.2

It will be seen by this analysis that the liquid contains, in addition to nitrogen, five of the mineral ingredients that are essential for the production of a healthy growing plant; the one not mentioned is iron, but plants only require a trace of this ingredient. And it is usually present in soils. It must be borne in mind that all the manures mentioned, except the sodium nitrate, the potassium nitrate, and part of the Peruvian guano had to undergo a process, next to be dealt with, before they can become available as plant food.

Nitrification.—This is effected in the soil by two micro-organisms (Bacteria). The first, known as the nitrous organism, converts ammonia into nitrous acid; the second, the nitric organism, converts the nitrous acid into nitric acid.

Carbon as organic matter must be present for the existence of these micro-organisms. Air, heat, and moisture are the three things that promote nitrification. It is very feeble at a temp. of 40° F., and ceases at 32° F. It is, therefore, necessary that the soil should be well drained. If the soil is waterlogged the air is shut out, and nitrification ceases, the nitrates present becoming denitrified, with the result that the nitrogen is set free. We must understand that nitrification takes place exactly the same in the soil of the smallest pot, under the gardener's care, as it does in any prepared border, or in the open field. If the soil in pots become waterlogged nitrification ceases, and if allowed to remain long in this condition the roots will perish.

Basic Condition of Soils.—Sufficient lime and potash must be present as carbonates or sulphates for the nitrates when formed to combine with, nitrate of lime and nitrate of potash then being formed, and these are the two sources from which all plants obtain their nitrogen from the soil. If any soil is not in a good basic condition it cannot be fertile.

How Plants Obtain Their Nitrogen.—The dry substance of plants usually contain from 2 to 3 per cent. of nitrogen, and they all (except the leguminous plants) obtain it from the soil principally as nitrates. Some gardeners still favour the idea that the foliage of plants has the power of absorbing nitrogen as ammonia from the air, but the most eminent botanists in England and on the Continent have concluded that the quantity obtained by plants in this way is so small as not to be worth considering. We may deduce from this that damping down houses, when closing in the afternoon, with liquid manure, as practised by some gardeners, does not benefit the plants so much as they think. Some, however, consider that the fumes of ammonia are injurious to red spider and other insect pests.

Leguminous Plants.—Peas, Beans, and Clover belong to this family. These plants have some power, not yet properly understood, of absorbing the free nitrogen from the atmosphere. Dr. Paul Sorauer, in his popular treatise on the "Physiology of Plants" (1895), says, "As far as our scientific knowledge goes, the leguminous plants can subsist on the nitrogen they take from the atmosphere, while cereal crops, fruit trees, and indeed all other phanerogams, must obtain this substance in some soluble form from the soil. Nitrates seem to be the most suitable form of salt from which plants obtain their nitrogen. Ammonia, which can probably be absorbed in minute quantities even in a gaseous state, is less suitable." It is a fact that leguminous plants can be grown in a soil devoid of nitrogen. These plants do not rob the soil of this element, but act as purveyors of it to the soil.

Why is Good Loam so Valuable?—The first 9 inches of an old

well-drained pasture is full of nitrogen, in three forms—nitrates, ammonia, and organic matter. The first 9 inches of soil in 1 acre, if weighed when dry and all roots removed, would contain about 2,250,000 lbs. of soil. At 0.10 per cent. of nitrogen this quantity of soil would therefore contain 2250 lbs.; but the turf we use for potting has all the roots in it, and these by their decomposition yield a large supply of nitrogen. Clover being a leguminous plant, greatly increases the nitrogen in a pasture.

How is the Nutrition of Pot Plants Effected?—The various composts we use for potting purposes should contain sufficient food for the growth of the plants; but the food in the richest soil can only last for a short time in the limited space of a pot, and therefore we should try to make the best of the soil. It is a common practice when sifting soil to throw out the lumps of turf that will not pass through the sieve. This is a great mistake. These lumps should be rubbed through, as their decay greatly increases the supply of nitrogen to serve as plant food.

When the soil in pots is getting exhausted the plants cease to grow vigorously, the foliage becomes pale, and the plant is weak in the growing point. We must now supply it with food. Soluble artificial manures are generally used where good liquid manure cannot be obtained. Great care should be taken not to overfeed, as this encourages rank growth; young tissues are built up too fast; the plants are not well matured, and when in this condition are more liable to prevalent diseases. Dr. Sorauer says that "the majority of diseased plants he received from gardeners was the result of overfeeding."

I have used tons of chemical manure, and from practical experience I find it better to under than over-feed. If we wish to keep our plants healthy we should know the composition of the soil we have to deal with; also the composition of manures, and the ash constituents of plants. We should then be able to mix our own compounds to suit plants under our care. In conclusion I may say that of all the elements essential for plant life nitrogen is the most important. It is one of the chief elements of protoplasm, and this is the substance which gives life to plants.—(*Paper read by MR. J. GAY, at a meeting of the Wormley and District Horticultural Society.*)



CATTLEYA GIGAS SANDERÆ.

AMONGST the most conspicuous of the many handsome Orchids shown at the last meeting of the Drill Hall was *Cattleya gigas* Sanderæ, of which the woodcut (fig. 97) represents a flower. This *Cattleya* is superb in colour and of splendid shape. The sepals and petals are of the brightest rose, while the lip is of an intensely rich maroon with gold and brown veins in the throat. It was staged by Mr. J. Hamilton, gardener to Hamar Bass, Esq., Burton-on-Trent, and was awarded a first-class certificate by the Orchid Committee of the Royal Horticultural Society.

BROOMFIELD COLLECTION OF ORCHIDS.

THE celebrated collection of Orchids got together by Matthew Wells, Esq., Broomfield, Sale, near Manchester, is to be sold on the premises on Wednesday and Thursday, June 26th and 27th. The plants will be sold without reserve, as Mr. Wells is relinquishing their cultivation; and Messrs. Protheroe & Morris, of Cheapside, London, will effect the sale, commencing at half-past twelve o'clock each day. The collection includes many rare and beautiful species, varieties and hybrids.

HABENARIA BIFOLIA.

THIS, the British Butterfly Orchid, is now very beautiful in the woods hereabouts, and a dozen spikes loosely arranged in a glass before us are exquisite, and fill the room with fragrance. But it is growing naturally under the deep shade of Hazel bushes, and with the pure white flowers in contrast with the dark green of the surrounding foliage the true beauty of this is seen. Here, also, is where they luxuriate, revelling in the moist soil and shady cool atmosphere, and the strongest spikes in dry open positions cannot compare with these for size of flower or length of spike.

This Orchid is easily naturalised in suitable positions in shrubberies or underwood in the pleasure grounds, and the nearer the conditions approach those indicated above the greater will be the success with it. In localities where they are plentiful no harm can be done by lifting a few clumps just after the flowers fade, and

establishing them in the garden. This is quite different from the reckless spoliation of our native wild flowers and Ferns, which goes on and apparently increases in the vicinity of all large towns, hawkers digging up Primroses and Ferns just as they are in the middle of the season's growth, these being planted in town gardens without any regard to a suitable position or soil, and consequently dying at once. The *Habenaria* referred to thrives in an ordinary, fairly stiff loam, and after planting should be mulched with some short material, as lawn grass or half-decayed leaves. Possibly, owing to the conditions under which it grows, this species is not quite so free in seeding as the *Orchis* species—e.g., *O. maculata*, *O. militaris*, or *O. pyramidalis*; but if the flowers are not cut too hard there will soon be a number of young plants, which during June and July will fill the air with the delightful perfume of their blossoms.

LÆLIA MAJALIS.

ALTHOUGH a dwarf-growing plant this superb species takes rank with the finest in the genus, and compared with the size of the growth the flowers are wonderfully large; in fact, if well managed there is not a more satisfactory species to grow. A small plant in a suspended pan 5 inches across has three twin-flowered spikes, and these, when fully opened, will doubtless be 7 inches across, no mean result from pseudo-bulbs barely 2 inches high. A common cause of complaint against this species is its alleged paucity of blooming, but this is chiefly the fault of the cultivator.

L. majalis should be grown in a light sunny position in the coolest part of the Cattleya house, with an abundant supply of moisture at the roots, and these, being fairly large and fleshy, delight in an open and well aerated compost. Some growers use blocks for this Orchid, and but for the almost constant attention required in watering, this system has much to recommend it, the roots having nothing to surfeit them, and the fact of their being wholly exposed to the atmosphere is conducive of their longevity—an important point. Still the fact cannot be gainsayed that blocks should only be used for those species which it is impossible to rear in any other way, and with *L. majalis* this is possible—in fact, easy.

Shallow pans, filled to within half an inch of the rims with crocks, these being kept rather high in the centre, and a thin layer of compost, are all that is needed. Good fibrous peat in lumps as large as a pigeon's egg, fresh sphagnum moss, and a little charcoal will be a suitable mixture for it. As soon as the pseudo-bulbs are quite finished, as indicated by their plump appearance, the plants must be turned out of doors and fully exposed to all changes of weather excepting very heavy rains. On the other hand, they must not by any means be dried, but need frequent attention in watering.

As the nights get colder at the end of August or beginning of September they must be taken either to a cool airy vinery or Peach house, or arranged in a pit with a south aspect, still exposed by day, but drawing the lights on at night. This thoroughly consolidates and ripens the growth, and is the principal point in the cultivation of this species. The plants may now be kept nearly dry until the new year, when they may be again introduced to the Cattleya house, and as soon as the buds at the base of the pseudo-bulbs commence to swell the compost must be put in order, repotting or surfacing as may be necessary. This insures the new roots a congenial medium to run in, thus increasing the vigour of the plants.

The flower spikes appear in the centre of the young growth and quickly develop, being generally in full beauty by the end of May. It is from this circumstance that the species received its native name of "Flor De May, Mayflower." The blossoms, as mentioned above, are frequently 7 inches across, the sepals are lanceolate, the petals broader, both of a pretty rose tint. The lip is large, rose, with streaks and a few spots of deep lilac purple. *L. majalis* is a native of Mexico, whence it was introduced in 1838.—H. R. R.

MODERN GRAPE GROWING.

EARLY TRAINING.

(Continued from page 470.)

It is a common practice with those even who intend to grow their Vines on the restrictive method, to commence with something which is far beyond the extension system, and can only be termed a wild or rambling system. "The more leaves, the more roots," they say. Possibly, but that depends on whether you calculate by weight or numbers.

Allow a Vine to make rampant growth and you get large fleshy roots comparatively few in number, and which, if unrestricted, will travel several yards away from the stem during the first season, desert the border altogether you have been at so much pains to prepare for them, and all your after watering and feeding of the prepared portion will be so much labour and material thrown away, for once roots get away from

the stem they do not return again of their own free will. The aim should be to induce the formation of the largest possible number of small roots, for large fleshy roots are comparatively useless. Every rootlet, however small, has near its extremity root hairs by which all the nourishment a plant obtains underground is taken in. Large roots and rampant growth mean only an excess of water; for a real solid building up you must have innumerable small roots, and hard if smaller stem growth.

I am in the habit of treating young planted out Vines exactly as I do those grown for fruiting in pots. The main stem is encouraged to grow till midsummer, and then, or at least early in July, it is stopped, the side shoots all the time being kept pinched to one leaf. Some of the upper buds will burst out again and again, but they are persistently stopped so long as there is no danger of the principal buds down the stem starting. A great deal of watching and discretion are necessary to

had a great deal to do with throwing this splendid Grape into the background, and I believe now that those Vines obtained from a western source have the better constitution, and as a rule this variety is grown better in the western counties. For ordinary practice there is no excuse for inducing late growth, which has to be ripened as well as it can be by a large amount of fuel.

In the autumn, as the lower buds on the main stem become partially ripe, the laterals may by degrees be closely cut off, beginning from the base, and sometimes in September the Vine may be shortened to the length it is intended to remain, or if there is any risk of its starting again one or two extra eyes may be left to be cut off later. It matters not whether the rod is 6, 12, or 20 feet grown and ripened in the way I have indicated. Any variety, with perhaps the exception of Lady Downe's, will, if allowed to start naturally in the spring, do so from every eye. They should never be stinted of water to induce ripening.



FIG. 97.—CATTLEYA GIGAS SANDERÆ.

see that they are not stopped too closely, and yet to take care that they are stopped as closely as circumstances will permit. According to my experience the leaf growth made after July is not worth having, and all the plants' energies should be concentrated on making plump buds, hardened wood with small cells and wire-like roots. "All this is old-fashioned," someone will say, "and we must go on quicker."

Possibly, but I am not without some experience of quicker methods, and one instance in particular would, I think, exceed anything recorded of late. The season before Mrs. Pince was distributed Mr. Meredith went to Exeter and procured a partially ripened plant from its owner. He planted it in rich soil, gave it plenty of heat and moisture, and it made such growth that six hundred plants were raised from it the following spring, the remainder of the plant carrying and ripening twenty-three bunches of Grapes, three of which were exhibited at a Netherlands exhibition, and received special notice from the Queen of the Netherlands.

Mr. Meredith certainly obtained a few guineas for his Vines and outwitted Mr. Pince, but I have always thought that the plan adopted

and never be allowed to become dust dry whether they are making visible growth or not.

Whether Vines are allowed to fruit the season after planting should depend altogether on their strength. If they are sufficiently strong it does good to fruit them moderately; but the fruiting should be quite a secondary matter, the great aim being to build up a good and regular framework for the future. There is frequently a tendency in young Vines during the second year to make irregular growth, some shoots being as large again as others, and frequently the leader is out of all proportion to the rest. All the strong shoots, including the leader, should have their points pinched out just beyond where they show fruit, and in a few days others which have overtaken them should be served in the same way, and by this means the plants will early in the season become perfectly balanced. Sometimes it is advisable to allow the leader to grow again; but never at the expense of the lower branches, and all the growth it is allowed to make should be completed before July.

It will be seen that the second season is devoted entirely to laying

the foundation of a handsome framework for the future, and I attach great importance to this. There is no difficulty and there is no loss in having our Vines objects of beauty, and as we do not all intend to throw them away in ten or even twenty years, I advise a considerable amount of attention to this now, for if the chance is allowed to slip it cannot be remedied afterwards. There will generally be considerably more growths than are wanted for permanent laterals; the superfluous ones may either be rubbed off when they commence growing or they may be cut off later on, before they have had time to harden. From 15 to 18 inches, according to the variety, should be allowed between the branches.—WM. TAYLOR.

(To be continued.)

SEASONABLE HINTS ON FLORISTS' FLOWERS.

AURICULAS.

THE most important point in the culture of these beautiful spring flowers is now engaging the attention of all who love their quaint and unique charms, for by this time the plants having been removed to their summer quarters, out of the influence of the hot sun and parching east winds, which we have for five or six weeks experienced, when watering has been so absolutely necessary, they will be anxious to place this into new soil where they may obtain fresh nourishment for their roots, that in which they have been growing for the last twelve months being very nearly exhausted of all its good qualities. Whatever may have been the opinions and practice of growers in times past, when each man of any celebrity was supposed to have his nostrum by which he ensured success, the treatment of the plant is now simplicity itself.

I think most growers are agreed that good fibrous loam which has been laid up for about twelve months is the chief thing to be relied on in making the new compost; in fact, three parts of this combined with one part of well-decayed manure and leaf mould, the latter not too old, with a good dash of coarse sand, is sufficient for the purpose. Of course the fibrous loam varies in quality in different places. Most of our southern growers obtain it from Epsom Downs or some of the neighbouring Downs of a similar character. I remember in my earlier days what was called the Kilmacannock loam, which was obtained from the limestone districts in the county of Wicklow, was much coveted by the Dublin growers of Auriculas. It is perhaps better where possible to have the compost mixed together for some considerable time previously, but this is not essential, and if it has been kept under cover so that the good has not been washed out of it, it will lose nothing by being mixed just at the time of potting.

Some growers prefer the use of horse and others of cow manure. The former is perhaps the stronger of the two; but although I have the choice of both I think I prefer the latter. There is less probability of fungus, which is very apt to run amongst the horse manure. In potting it is better to use too small pots than too large ones. Plausible reasons are brought forward by the advocates of both kinds. Coarse Bedfordshire sand or powdered charcoal may be added to keep the soil open. In potting it is very desirable that the soil should be well pressed down; indeed, tight potting is what should be aimed at, for some of the ingredients not being quite decayed shrink as they become more so, and make the soil (what we call in this county) "hover," so that the water will pass too freely through it unless this plan be adopted.

I need hardly say that perfect drainage is absolutely necessary, and that care should be taken before the compost is placed in the pots that worms and grubs of all kinds should be looked for and thrown away; if left in, as the worms increase in size they are very apt to disturb the drainage, and there is nothing that the Auricula resents so much as stagnation. Deep potting is, I think, to be preferred, especially as by adopting this there is a greater likelihood of obtaining offsets; and I have been very much surprised to find how few of these there are this year. This is one of the causes of the Auriculas maintaining their price. We cannot make cuttings of them, nor layer them, but just simply wait for their pushing forth the offsets, and it not unfrequently happens that the plant will not do this for two or three years. Some varieties, such as Traill's Beauty, and most of the selfs, are very prolific; while others, such as Prince of Greens and Lancashire Hero, are very shy in producing offsets.

When the plants are being potted it is well to have an empty frame in which they can be placed and shaded for a few days. All aphides should be brushed off before the plants are placed in their summer quarters—indeed, where they are grown in a pit, it is best to fumigate them before commencing potting. The frames should be opened after a few days, and for some time the outer leaves will gradually decay, and should be taken away for fear of creating damp. After this the plants will require but little attention save that of watering, weeding, and giving air upon all suitable occasions; in fact, the frames ought never to be closed during the summer, for when they cannot be left entirely open they should be tilted. Of course, if persons wish to obtain new varieties this is a good time, but they are very few in number and their price is high.

CARNATIONS AND PICOTEEES.

From all sides I hear lamentable complaints concerning these where they are grown in the open. Those who grow them under glass are doubtless independent of the elements, but we cannot all do this, and are therefore obliged to be content to grow them in beds, and a most disastrous time it has been for us. The summer of 1894 with its deluge of rain prevented the layers from rooting well; the grass was so lishy

that it seems not to have had the power of rooting well, and consequently, although I had a goodly number of both florist and border varieties, I have hardly a sufficient number of plants to make up a bed. The only exception to this disastrous condition is that of a number of seedling plants raised from seeds kindly sent me by Mr. Martin R. Smith. These have been out and unprotected all the winter, and are now stocky plants, promising an abundance of bloom. These are, of course, from the seeds of 1893. Every seed grew, and the plants seem exceptionally strong and vigorous. As the flower stems spindle for bloom they should be tied to stakes, and the surface of the bed may be top-dressed. Weeds should be looked after and earwigs trapped, as they have a bad habit of getting into the bed and nibbling away at the base of the petals, so as to entirely destroy the bloom; in fact, they are as great a pest to the Carnation as they are to the Chrysanthemum. The compost for layering should now be prepared in a dry place; provided it is light and porous there is no need for being too particular about it.

GLADIOLI.

So far these promise well. There can be no question but that a dry season suits them best. I feared from the fact of last autumn being so wet that one might expect many of the corms to be feeble, but as yet I see no evidence of it, but I have long ceased to put any confidence in these bulbs. They are no doubt the subjects of a destructive fungoid disease, which Dr. Cooke, the eminent microscopist, to whom I sent some bulbs, has clearly shown. Unfortunately he suggests neither preventive nor cure. I think it will be well, as the plants are advancing in height, to water if this drought continues, not giving them dribbles every day, but a good sousing now and again. Stakes should now be got ready, so that towards the end of the month, when the plants throw up their flowering stems, they may be placed to them, for it is a pity a good spike should be valueless by being crooked through want of support. Liquid manure may be applied with caution, and in light soils top-dressing with decayed manure may not be unadvisable, but the Gladiolus very much dislikes contact with fresh manure.

RANUNCULUSES.

I have a most melancholy tale to tell concerning these. My beds last year were a sight worth looking at, but this year there is hardly a bloom to be seen, and I fear very much the greater portion of the tubers may be lost. I do not attribute this to the severe weather of the present year, but to the excessive wet of the last; the tubers were not ripened properly as there was no sun to do it, consequently I believe there was no real vigour in them; so largely did they increase last year that I gave hundreds away in all directions, and now I shall with difficulty save enough for planting again. Those who have any should carefully watch them and take them up when the foliage decays. The ground is now very dry, and should rain come they will commence growing, and this is fatal to them.

PANSIES.

My small collection in pots has done exceedingly well, and I have had a good bloom. I cut them down and shall plunge them in pots, as in our drier climate I find they do better this way than in planting out. When it is desired to increase the stock cuttings may be made of the side shoots; larger and hollow stems are of no use whatever, they are very much gone out in the South owing, probably, to our climatic conditions, but they are a very beautiful class of plants.—D., *Deal*.

STRAWBERRY ROYAL SOVEREIGN.

I SEND a sample box of outdoor grown Strawberry Royal Sovereign to show that it is a good early variety. We had some fruits ripe on the 7th inst., growing side by side with Noble, under exactly the same conditions as to soil and treatment. We gathered three or four days earlier from Royal Sovereign, which I consider the best early Strawberry that has yet come under my notice of the Paxton type. So far as I can judge, when better known it will be largely grown by market growers. The fruits seem very firm, and will no doubt travel well, and as the price this season will be reasonable I would advise all lovers of a good early Strawberry who do not possess Royal Sovereign to lose no time in securing a good stock for another season.—G. R. ALLIS.

[The specimens were very handsome and of splendid flavour.]

I WAS pleased to see Mr. Molyneux's note (page 517) in reference to this magnificent Strawberry. I have at least twenty varieties, including all of the late Mr. Laxton's raising, and in my suburban garden here, with strong calcareous addition to the ordinary soil, this is by far the best. It is a few days behind Noble, and as early as Sensation, but of better quality than either, and doubly prolific. The berries are from 1½ to 2 ozs. each, and this notwithstanding the season here has been unusually dry and warm. I am surprised, in the sunny south of England, Mr. Molyneux did not pick his under glass until the end of May. The first week in June mine in the open, and without any particular care, were fit to pick. Other varieties give a few good berries, but Royal Sovereign promises to have successive pickings equally good. Rain yesterday (June 13th) diminished many of my garden troubles, arising from the persistent and continued dry weather.—W. J. MURPHY, *Clonmel*.

I CAN corroborate "E. M." (page 517) as to the good quality of this variety. I have not tried it for forcing owing to the stock being

limited, but grown in the open quarter of the kitchen garden it has proved to be hardy, early, and very fruitful, weak plants carrying a heavy crop of large fruit of good colour and excellent flavour. Many of the fruits from one-year-old plants weighed over 2 ozs., the first of which were ripe on the 10th inst. As showing its earliness other varieties grown on the same quarter were President, Sir Joseph Paxton, Auguste Nicaise, Lord Suffield, Gunton Park, Vicomtesse H. de Thury, and several other varieties, but the latter is the only variety that has commenced to colour. I predict a great future for this novelty, as it has earliness, size, and quality to recommend it. The flesh being solid and firm it will travel well, and I realised 2s. per lb. for fruit of this variety in the open market, although other varieties were coming in somewhat freely from the South, and were being sold at 6d. per lb.—a fact that should be made a note of by market growers.—GEO. SUMMERS, Sandbeck Park, Yorks.



ROSE SHOW FIXTURES FOR 1895.

- June 20th (Thursday).—Colchester and Ryde.
 „ 25th (Tuesday).—Isle of Wight (Cowes).
 „ 26th (Wednesday).—Richmond (Surrey).
 „ 27th (Thursday).—Gloucester (N.R.S.) and Canterbury.
 „ 28th (Friday).—Exeter.
 „ 29th (Saturday).—Windsor.
 July 2nd (Tuesday).—Diss, Maidstone, and Sutton.
 „ 3rd (Wednesday).—Brockham, Croydon, Ealing, Farningham, Lee,† and Sittingbourne.
 „ 4th (Thursday).—Eltham and Norwich.
 „ 6th (Saturday).—Crystal Palace (N.R.S.).
 „ 9th (Tuesday).—Ipswich, Westminster (R.H.S.), and Wolverhampton.*
 „ 10th (Wednesday).—Chelmsford, Farnham, Hitchin, and Redhill (Reigate).
 „ 11th (Thursday).—Bath, Great Malvern (Hereford Rose Society), Helensburgh, Woodbridge, and Worksop.
 „ 17th (Wednesday).—Derby (N.R.S.).
 „ 18th (Thursday).—Canterbury (Kent Hospital Fête) and Halifax.
 „ 20th (Saturday).—Manchester.
 „ 23rd (Tuesday).—Tibshelf.
 „ 24th (Wednesday).—Chesterfield and Newcastle-on-Tyne.*
 „ 25th (Thursday).—Trentham.
 Aug. 3rd (Saturday) and 5th.—Liverpool.†
 * A show lasting three days. † A show lasting two days.
 —EDWARD MAWLEY, Rosebank, Berkhamsted, Herts.

ROSE MARÉCHAL NIEL UNDER GLASS.

I DID not reply again to "H. R. R.'s" letter on this subject, though I was glad to see Mr. Divers' corroboration, because it is a generally accepted fact that grafted Roses are distinctly inferior to those which are budded for a permanence. "H. R. R." says he has not infrequently had growths of 20 feet from the grafts in one season, but has he ever got as many first-class blooms per square foot of glass from a grafted plant as I said I had from my budded one? My Maréchal Niel makes twelve shoots of 15 feet long each every year, and they would be considerably longer if they were not stopped. They are now just beginning to start.—W. R. RAILLEM.

NEW ROSES.

WE have received from Messrs. Wm. Paul & Son, Waltham Cross, specimens of two new Roses, one representing the Tea section named Sylph, the other of the China class, called Queen Mab. The former is superb, with its stiff petals and bushy, floriferous habit. The colour is white, delicately suffused with rosy lake, and is apparently distinct from any other of the section. We shall expect to hear more of this Rose later on. Queen Mab is the Rose for buttonholes, the buds being of perfect shape for that purpose. The colour is somewhat difficult of description, but rich, pale terra-cotta with rosy purple-tipped petals will convey some idea. Each flower is of great substance, and as we suppose both to be seedlings of Messrs. Paul's raising we may safely congratulate them on their acquisition and introduction.

ROSE MRS. W. J. GRANT.

WE have received a long letter relative to the change of name of this British-raised Rose, and two plants have been sent to us under another name. As this letter makes reference to matters and alleged statements which have never appeared in the *Journal of Horticulture* its publication would be obviously irrelevant. The writer, however, claims that the purchaser of a plant that has been named, certificated, and awarded a gold medal has the right to change the name and substitute any other that he may choose. We will not argue the matter as to what right a citizen of a foreign nation may have to do this for the sale of what he re-names in his own country; but we have a right to protest, and we do protest, against a foreign name superseding

the legitimate name of a plant in the country in which it was raised and in which it has been honoured by competent officials at public exhibitions.

The Rose Mrs. W. J. Grant was raised by Messrs. Dickson & Sons in Ireland. It was awarded the gold medal as a new variety at the National Rose Society's show at Chester in 1892, and granted a first-class certificate (which was well deserved) at Wolverhampton during the same year. Whether it had more honours we do not at the moment remember, nor does it matter, as the name of the Rose was officially recognised in the most public manner, and no other name can be found registered in either the National Rose Society's books or the public press of that year.

Mrs. W. J. Grant, then, is the true name of this Rose, and under that name the variety ought to be exhibited and grown in this country. It is a well known law in botanical nomenclature that the first name given to a plant and authoritatively accepted is its correct name, and always takes precedence if any others are given inadvertently. If it were not so nothing but confusion would ensue, and no person has any right whatsoever to alter the name of any plant, be it species or variety, that was certificated and registered, say, at the last meeting of the Royal Horticultural Society, and sell that plant under an entirely different name in this country, if anywhere else. If a person purchases an unnamed variety of a flower, or even a named variety that has not been placed before the public, then he can give it what name he chooses for the purpose of exhibiting and gaining a certificate, but after it is honoured no one is justified in changing its name because he happens to purchase the stock, and intends selling plants under another name in the country in which the variety was raised.

Investing flowers with the names of individuals is a compliment to those persons whose names are used, and we are bound to say that it is the reverse of graceful to attempt to obliterate the compliment by erasing the name. Nor, in the case of that name being a respected name, is any change likely to increase the sale of the plant at home. As a fact, we know of persons who simply will not purchase plants of Mrs. W. J. Grant Rose under any other name, and this is the name that will be used in the *Journal of Horticulture* under whatever other appellation blooms may be exhibited.

If one person has the right to alter the name of a Rose under the circumstances indicated, and to work up stocks and sell plants under another name, so has another. All the names so given, whether few or many, would be wrong. Only one could be right, and the only right name of the Rose under consideration is Mrs. W. J. Grant.

Since the foregoing was in type we have received information that a resolution was passed at the last Committee meeting of the National Rose Society to the effect "that, as Messrs. Dickson's new Rose was exhibited and awarded the gold medal of the Society under the name 'Mrs. W. J. Grant,' the Committee considers that that name only should be recognised in Great Britain." This, it is hoped, will settle the matter.

LATE PEAS.

IN Scotland we have a decided advantage in the climate over cultivators in the south, and in that respect there is less difficulty in keeping up a long-continued supply of Peas. At the same time, in order to prolong the season, a special course of treatment must be followed. After the earliest crop out of doors has been provided for, there is no trouble with Peas until we come to the crop that has to provide for September, October, and, in favourable years, part of November.

At the best there is uncertainty as to the result, which sometimes occurs on account of the weather, occasionally from the attacks of rodents, and not infrequently because a sowing is made too early or too late. In the last mentioned case it may happen that Peas from a sowing put in towards the end of May will continue in bearing until stopped by frost; or on the other hand, the best results may follow from a sowing in the middle of June. My latest sowing last year was on June 21st, and if it had not been for the severe frost in the second week of October that would have been just right. As a rule, however, I find it best to make a big sowing in the second week of June, any time, say from about the 7th to the 13th. Quite twice the usual breadth must be put in, more if space can be spared, because as the season cools the young pods fill slowly, and when this vegetable is a daily requirement it is needful to have a sufficiently large quantity to enable one to secure a dish off a fourth or even less of the crop.

The preparation of the ground is of some importance. For my own part I think it a mistake to sow Peas of any sort in trenches enriched with manure in layers, and for a late crop this is not required at all. If the ground is deep and in good heart no manure will be required; but once the plants have reached the flowering stage, I find a dressing of soot, nitrate of soda, or sulphate of ammonia, most helpful in causing a fresh and continued growth of haulm. Deep sowing is also beneficial. The seeds may be 6 inches from the surface, though at first it need be covered only 3 or 4 inches in depth, and when the plants are staked a little more soil may be drawn to them. A good plan is to make a trench 8 or 9 inches wide, and in this to set two rows of Peas at least 6 inches apart, while the seed in the rows ought to be not closer than 3 to 4 inches. A few rows intended to yield the very latest supply should be sown even wider. Thin sowing, and the consequent free space allowed each plant, is the surest means I know for securing a late crop of fine Peas.

Late Peas are generally tall growing, and it is one of the commonest

things in the autumn to see the overgrown tops bent over, and the space between the rows filled with haulm, which rarely if ever is capable of producing fruit. The way out of this difficulty is by pinching or cutting over the tops before they have quite reached the limit of the sticks. Later in the season the side growths may be pinched with very good effect, in order to hasten the filling of the pods. It may here be remarked that rows of late Peas should be kept picked in the earlier weeks of bearing, for if once pods are allowed to ripen, or even to remain too long on the plants, growth will be seriously checked.

As to sorts I suppose most people have their favourites. The present is the first year that I have dispensed with Ne Plus Ultra. After growing Fame for three years alongside it I have come to the conclusion that the latter is the better of the two, and particularly so with respect to its continued bearing habit. I am also growing a good breadth of Juno, a comparatively dwarf sort, of which I have formed a favourable impression. Besides these I am trying a few novelties of recent years, but these of course will in no manner affect the crop, even should they fail. —R. P. BROTHERSTON.

EXPRESS GRAPE GROWING.

I AM obliged to "Market Grower" for the information and explanation respecting the 300-foot house of Gros Colman Grapes referred to by him. The crop was undoubtedly heavy, but unfortunately did not finish well. Yet heavy as that crop may have been, judging from "Market Grower's" statement, his own Vines are carrying a heavier crop at the present time, and he states many of the bunches look like weighing 3 and 4 lbs. It will be quite interesting to hear how these Vines finish their crops.

It is wonderful what the Vine is capable of doing under good management. As "Market Grower" remarks, abundant moisture and liberal feeding are absolutely necessary if heavy crops of first-class Grapes are to be produced annually. It is unreasonable to expect a Vine confined to a limited border to continue year by year for any great length of time to mature heavy crops of good Grapes without a supply of the necessary foods. As all the available plant food in the soil very soon becomes exhausted, and must of necessity be replaced, experience has taught me that frequent small supplies of manure are the best. I often tell my friends to feed their Vines as they feed themselves, viz., a little at a time and often, and give plenty of water, tepid if possible, which warms the soil, especially in the early part of the year, and which stimulates and encourages root action, cold water having the opposite effect.

I thank Mr. Bolas for his remarks in his letter of last week, in which he refers to a Barbarossa (Gros Guillaume) Vine grown in a lean-to Muscat house. Like all the other Vines in this house, it was planted out of a 3-inch pot in the latter part of June, 1890. It made a splendid cane, and was cut back, leaving about 8 feet of rod. The following season, 1891, a second cane was run in, and the Vine carried six bunches. The two largest were exhibited at Derby in strong competition, and were awarded a first prize in 1892, as stated by Mr. Bolas. This Vine carried thirteen bunches, weighing 108 lbs. They were a fine even crop, well formed, compact, neatly shouldered bunches, and well coloured, but the berries were not so fine as the previous year. Only two bunches were exhibited, and were awarded a third prize in 1893. It again carried ten bunches, and finer I have never seen. Some of the bunches were the largest the Vine has ever carried, and every bunch was perfect in finish and good berries. All the bunches were exhibited; the two largest were staged not for competition, and were awarded a cultural commendation and special first prize. Two were placed in open competition, and were awarded a second prize at Derby; four were exhibited at the Botanical Gardens, Manchester, and awarded first prize. The ninth bunch was included in my collection of Grapes at Earl's Court, and awarded the silver-gilt medal; and the tenth bunch was staged in my collection of Grapes at the Town Hall, Manchester, and was awarded the Society's gold medal.

As Mr. Bolas also remarks, I have never had any extraordinary results from very strong wood. I have always found that the best results are to be obtained from medium well matured wood, as large growth generally contains a large proportion of pith which never can produce fruit of first-class quality.—W. INNES, Derby.

ROYAL HORTICULTURAL SOCIETY.

JUNE 11TH.

SCIENTIFIC COMMITTEE.—Present: Dr. M. T. Masters (in the chair); Mr. McLachlan, Professor Müller, Dr. Bonavia, Rev. W. Dod, Mr. Michael, and the Rev. G. Henslow, Hon. Sec.

Injury by Salt.—With reference to this subject, discussed at the last meeting, Mr. Dod observed that it was reported from Lancashire that while evergreens had been uninjured during the severe frost, yet they succumbed to a storm which conveyed much salt from the sea.

Asparagus Fasciated.—Mr. Arthur Sutton sent a remarkably fine specimen of this not uncommon phenomenon in Asparagus. Mr. Dod observed that it was probably the result of over-nourishment, as he had fertilised *Primula rosea* with superphosphates, and fasciation resulted from it.

Beetles and Orchids.—Some specimens of cockroaches were received, said to be very destructive to Orchids and Ferns. Mr. McLachlan named them as *Blatta lapponica* and *germanica*. They were doubtless

imported with the plants. Any method usually adopted for destroying cockroaches should be applied.

Dried Orchid Flowers.—Mr. Chapman, gardener to Mr. Measures, sent some remarkably well prepared specimens of dried and varnished Orchid blossoms, retaining their colours.

"Barbarossa" Grape.—Dr. Masters exhibited specimens of Grapes which had burst, and apparently showing another in the interior. This has been the usual interpretation; but an examination of the monstrosity in the young state proved that the interior "Grape" was really a seed, but coated with a succulent membrane, something like the seed of a Gooseberry. Dr. Masters observed that Robert Brown had noticed the same phenomenon to occur in *Leontice*, *Berberis*, and *Crinum*.

Double Daisies.—Some fine specimens of double white Daisies on very long peduncles were received from MM. Lambert, Treves. It was suggested that they may have been derived from *Bellis sylvestris*, which has very similar scapes, and not from *B. perennis*.

Ustilago primulina Disappearing.—Mr. Dod remarked that plants formerly badly infested with this disease gradually recovered, and were now quite free from it. He observed that the remedy so often given of total destruction by burning of plants infected by certain fungi might be sometimes too drastic a measure. Dr. Masters corroborated this observation, as he had known a similar recovery to have taken place in Lilies.

Infected Soil from New Zealand.—With reference to this matter the report from Kew is as follows:—"The root fungus sent to Kew for investigation from Cambridge, New Zealand, is known as *Dematophora necatrix*, Hartig, the cause of the much-dreaded 'root disease' in vineyards and orchards, and is widely distributed throughout France, Italy, Austria, and South-west Germany. The fungus also attacks young Maples, Oaks, Beeches, Pines, Spruces, and Laburnums; Beans and Beet are also attacked. The fungus can live in the soil as a saprophyte, and there forms at least two forms of reproductive bodies, which are dispersed by wind, birds, or small animals. When the mycelium comes in contact with the rootlets of a living tree it becomes parasitic, and spreads rapidly in the living tissues.

"All diseased plants should be burned, and the soil where infected plants have grown should be thoroughly mixed with quicklime if available; if not the soil should be burnt, so as to destroy all remnants of roots which contain the mycelium. Diseased patches of ground should be isolated by digging a trench about 1 foot deep, and left open. Wood ashes or manure containing potash, but no acid, dug into the soil among the roots is a preventive.

"The disease has probably been imported with trees from Europe. If the roots of imported trees are made very moist, and kept in a warm place for three days, the fungus, if present, will show itself under the form of snow-white strands and tufts of mycelium."

A vote of thanks was unanimously given to Mr. Massee for his important investigation.

SAXIFRAGAS IN LONDON.

So many times have the beauties of Saxifragas been extolled in the pages of the *Journal of Horticulture* that it would appear, at first, superfluous to refer to them again now. The generality of these articles have, however, dealt with their cultivation in country gardens either as border or rockery plants, and it is to call attention to their adaptability to town gardens that these notes are penned. This then is the excuse, if any is needed, for again placing them before readers. It is true that many of the larger forms are now extensively cultivated, but it is to the smaller gems of the family that I would now refer. Between these and their larger brethren there is very little in common; in fact, on a cursory glance, it seems impossible that they belong to the same family. A garden of sufficient size should certainly contain representatives of the big and the little, but for gardens of very limited extent the latter are undoubtedly preferable. They naturally permit of an infinitely greater variety, which is synonymous with extended interest, and for this reason should be chosen.

By way of experiment I tried about a dozen sorts, and all but one grew, and are now flowering with the greatest profusion in a narrow border that gets only the afternoon sun. So well have they done that I hope by this time next year to have a much larger collection, and I have little doubt that they will afford entire satisfaction. There is a rockery in the garden, which is situated within earshot of Big Ben, but unfortunately it is used as a stepping-stone for the cats which abound, and consequently no plants will grow thereon, except perhaps the Stonecrop, which just manages to exist round the margins where the felines do not jump on it so much. It was originally purposed to plant the Saxifragas on this bit of rockwork, but after considering the matter it was decided to leave it to the cats, and place the plants in a narrow border that runs round the garden. We had some qualms about doing this for fear they should not succeed, but we need not have had, for, as previously mentioned, the plants took readily to their new home. The idea of planting was originally suggested some two or three years ago by the manner in which they were and are grown in Dulwich Park, and fostered by the notes referring to them that have appeared in the *Journal* from Mr. S. Arnott. But the circumstances were essentially different, for there they had the fresh air from an open space of upwards of 70 acres, whereas in my garden the distance between the rows of houses certainly does not exceed 60 feet. Nevertheless, we felt bound to give them a trial, and would now like other of your town readers to go

and do likewise. They will almost certainly be well satisfied with the results that will eventually be attained.

The first thing considered was the soil, and it was decided to put them in the ordinary soil, instead of making any special preparation for their reception. The mould is of a somewhat light nature, but is really very poor, as few things seem to thrive. Apparently it contains a certain per-centage of lime, as Mignonette is one of the few plants that grow well, and as it is frequently said this plant will not do well without lime in some form or another in the compost, consequently we have concluded it must be there. Perhaps it is considered a requisite for Saxifragas, and if so this, of course, will account in some measure for the welcome success. When the plants arrived the weather was so bad as to render planting an impossibility, so they had to remain in the package for upwards of a week, until the ground was in a fit condition for the work to be proceeded with. However, it was not by any means a long operation, and soon the whole were planted out and duly labelled.

As this was in the spring, and the weather turning bright with warm sun, a small flower pot was inverted over each plant every day, and removed in the evening. In addition to this, careful attention was given to the watering, a little being given whenever it was considered necessary or advisable. Despite these precautions, however, the plants flagged badly for several days, and it was thought they would not survive; but it is a long lane that has no turning, and eventually the plants commenced to grow. After this all was plain sailing, and only one plant of the dozen succumbed. This was decidedly encouraging, and insured them every possible attention. It was not very long after the plants had become thoroughly established ere they commenced flowering, and the modestly beautiful little flowers have received a goodly amount of admiration, which they thoroughly deserve. At first people do not admire them—on the contrary, regarding them as insignificant; but when once they have been induced to look closely into the flowers they have quickly discovered their beauty, and have been proportionately profuse in their expressions of approval. One lady became so far interested as to procure a magnifying glass, go down on her knees, and thoroughly examine them by its aid. It need scarcely be said to those who know and love these plants that her astonishment was very great at the discoveries she made.

It may be interesting to some readers to know the names of the sorts that are grown. All are remarkable for their lowly beauty, and not for any imposing appearance. The first little gem is *S. Huetti*, which has miniature yellow flowers, while *S. Mooreana*, apparently of the London Pride type, has small flesh-coloured blooms of great beauty. *S. glaucum* has whitish flowers, but the most exquisite of all is *S. Andrewsii*, with its star-shaped inflorescence about the size of a three-penny piece. The base of each of the petals, of which the ground colour is white, is chastely spotted with crimson, and adds a singular beauty to the plant. It is the diamond of the collection in my opinion. The remainder comprises *Kingi*, *muscoideus purpurea*, *leptophylla*, *Aizoon minor*, *hypnoides*, *decipiens*, and *Haworthii*. It would be interesting if other readers who have grown Saxifragas in towns would give their experience on them as town plants. Their notes would be read with interest by many besides—A LONDON AMATEUR.

CALOCHORTUS BENTHAMII.

THIS is a beautiful little Californian bulb, somewhat nearly related to *C. pulchellus*, but distinguished by its bright yellow flowers, on the upper surface of the divisions of which are thickly clustered a number of short yellow hairs (see woodcut, fig. 98). It is very dwarf, seldom exceeding 8 inches in height, but is free both in flowering and growth. It is particularly well adapted for culture in pots, and with the protection of a cool frame it develops its flowers early in the year, and is much better than when grown in the open border. A pretty companion for it is *C. Maweanus*, which has bluish purple flowers about the same size as *C. Benthamii*, and similar habit. This is, however, found near the coast, and in the neighbourhood of San Francisco.

LILACS.

It is doubtful if amongst the whole range of hardy deciduous shrubs any can claim so many admirers as Lilacs. Not only are they enjoyed by the wealthy when grown "out of season," but when naturally flowered the plebeian may indulge in the pleasing perfume so freely emitted by the bulk of them. Now that new varieties are raised so assiduously by French nurserymen quite a large collection of varieties is obtainable.

Too often Lilac bushes are left to take care of themselves, consequently they quickly become crowded when growing amongst other plants in the shrubbery. Nothing is done to renovate exhausted bushes by the removal of weakly overcrowded branches, or the prolongation of that necessary vigour to give annually the best results by the addition of a small quantity of manure or fresh soil to the roots. It is liberal and rational treatment that produces that magnificence of flower panicles that renders Lilacs so charming as compared with the puny blossoms from half-starved bushes.

The bulk of choice varieties are grafted or budded on seedling stocks, not only to increase their numbers, but to improve their growth. Too often the sucker-like growths which spring from the base of the stock are allowed to grow away at will, much to the detriment of the real

Lilac bush. These growths make such rapid progress if at all neglected that in a very short space of time the original bush is nothing more nor less than the stock. Nothing could be more handsome than a vigorous naturally grown Lilac bush on the lawn. I know of one, *S. vulgaris*, 20 feet in diameter, growing under these conditions, which was this season a mass of blossom.

Having taken a note of deserving varieties as they appear, I will briefly allude to each with a view of assisting intending planters. The method of arranging the plants in the shrubberies is a matter for individual concern, but to obtain a lasting effect not less than three bushes should be planted together. Some persons may still cling to *S. vulgaris alba* as a white-flowered Lilac, but those who are acquainted with Marie Legraye know quite well that the original variety is now superseded. Not only are the flower panicles so much larger, but the colour is even more pure. The habit of Marie Legraye is so much more



FIG. 98.—CALOCHORTUS BENTHAMII.

compact, the older variety having such a habit of "running up," while the newer form is less tall in its growth, although vigorous enough to give excellent results.

Perhaps the most appreciated of all white Lilacs is the double flowered Madame Lemoine. The panicles and the individual blossoms are exceptionally large, and of the purest white; indeed it is a grand acquisition to the Syringa family. The Siberian and Persian forms are distinct, yet pleasing; the semi-drooping panicles are freely produced on somewhat weakly-looking stems; the latter, especially, is free and rich in colour. Charles X. is another single-flowered kind that everyone should grow. No variety that I know blossoms so freely. The buds before opening are bright red, the expanded flowers changing to a deep lilac. La Tour d'Auvergne buds are deep red, rosy lilac when fully expanded; a very fine double-flowered variety. Lemoineana flore-plena.—In colour soft lilac when fully expanded. Those who appreciate free-flowering varieties of compact growth should not miss having a plant or two of this Lilac. Leon Simon is another double-flowered, medium-sized variety, having well-formed, light pink, mauve-shaded blossoms. President Grevy.—Lilac in colour, double-flowered. La Virginite.—Light pink changing to white, a beautiful double-flowering variety. President Carnot.—Semi-double; in colour pale lilac, having a peculiar slaty appearance.

Alphonse Lavallée.—The double-flowered buds are rich rose, changing

to light mauve by expansion. One of the best of double Lilacs is Michael Buchner, rosy lilac in the bud, paler when expanded. Amongst the newer single-flowered varieties Souvenir de Louis Spath is perhaps the most showy of all, rich purple red, which colour is retained after expansion. Géant des Batailles.—The single-flowered buds are red at first, changing by expansion to deep lilac. Beranger bears enormous clusters of large lilac-purple flowers, and is quite one of the best of single varieties. Liberti has compact clusters of lilac-blue flowers with a metallic reflex.—E. M.

PRUNINGS.

APROPOS of restoring "Rollo's Oak" by masonry (page 474), some years since I repaired by this method a venerable Beech—too grand in its decaying glory to leave to its fate. Half way up the trunk an extensive cavity—probably caused by the loss of a limb—collected the rain water, not only hastening decay, but becoming at times offensive from the smell. This cavity was scraped out, filled up with bricks and Portland cement, and the latter smoothly surfaced over the brickwork, thus by its colour being hardly distinguishable from the natural bark. Eventually the bark closed in over the mason work, and this bit of surgery gave complete satisfaction.

"Food Requirements of the Vine" (page 466) and the discussion on "Express Grape Growing" are both interesting and instructive. For renovating old Vines I pin my faith on Thomson's Vine manure. As a tonic, where the system has gone down, it works wonders. Those troubled with shanking, and unable to clear out the old stock, should try it. I never fail to fork a light dressing of it into the border at starting time, and, it must be added, never fail to grumble at the cost.

The veteran Potato grower's text "Powder" (page 479), and a promise of shot to follow, we may be sure is no flash in the pan. Presumably many a sieve will scatter Tait and Buchanan's anti-blight powder o'er many a Potato patch, so we will keep our powder dry, and use it dry. Without diving into trade secrets, one may suppose that copper in some shape or form is present in the composition, hence the thought arises whether this will have any deleterious effect on the operator.

Each number of the *Journal of Horticulture* forcibly impresses the more liberal spirit of the new order of things. An illustration to the point is "Free Growth of Peach Trees," by Mr. Iggulden (p. 490). Modestly he says, ". . . there is nothing very novel in this;" and that we may allow in noting the practical instances he quotes. Possibly there is nothing new in it—so far as theory goes—but there is an army of cautious ones loth to attack an old custom until they can see their way clearly defined by some practical leaders. Mr. Iggulden introduces the thin end of the wedge so cautiously, yet so convincingly, that many will, I wot, strike a blow for freedom—the freer training of Peach trees.

"Battle of (flowers at) Hastings," see note (p. 497). Not exactly the Norman invasion. ". . . £300 has been promised . . ." to provide the sinews of war. True flower lovers will not regard with unqualified satisfaction this continental innovation. Poor flowers! I would suggest a slight alteration in the programme, viz., flour instead of flowers. At one time when touring in the Emerald Isle, being in Dublin on a gala day, I was struck (literally and figuratively) with the manner in which the students of Trinity College used small paper bags of flour, and the excellent sport it gave (to them). I merely throw out this flour as a suggestion and a plea for the flowers we love.

Marantas.—These beautiful foliage plants do not readily lend themselves to utilitarian purposes. To this—in this age—we may attribute their decline. Mr. Row's paper (p. 499) clearly points to a matter of vital importance in successful culture, viz., atmospheric moisture; consequently the removal of these plants for but a short time from these satisfying conditions will show they do not like it. M. Veitchi, an old variety, but taking high rank in the family, recalls a difficulty—not in growing it for exhibition, but in getting it to stand for the few hours it was needed for such. On some occasions when reaching home it required, and had, a warm bath to get it out of the sulks. M. zebrina and M. Warscewicz, grown in cork-covered tubs, are noble objects in a tropical conservatory.

Bees.—The two bee-keepers ("Lanarkshire" and "English") keep us *au courant* with apiarian work. It is a matter for surprise to find that in so many fine gardens bees are not. Perhaps it is considered that the work of the modern bee expert is too intricate to be lightly engaged in. Setting aside considerations of profit, I have found one or two of Neighbour's cottage hives—which by-the-by are not cottage in price—with the bell-glass supers give agreeable results. Although honey can to-day be purchased so cheaply, a bell-glass with its virgin contents is ornamental and useful, and especially esteemed, when home produced, on the breakfast table. To a beginner the question of more stings than honey is obviated by a veil and gloves.

Onions.—Some time since a correspondent advocated the sowing of Onions with a dash of sulphur in the drills. This was pruned out for trial, and results are, so far, highly satisfactory. This season must be

looked upon as highly propitious for the maggot. The attack has been made, but the maggot on reaching the sulphur "gave it up." Nothing else was done as a preventive. A good sprinkling of nitrate was given in anticipation of rain (which did not come). This exultation may be premature, but present appearances when viewing the Onion plot call forth blessings on your correspondent and his sulphur remedy from—SAYNOR.



CHRYSANTHEMUM MISS M. M. JOHNSON.

THIS American variety, a deep golden yellow incurving Japanese, raised by Messrs. E. G. Hill & Son, is reputed to be very dwarf, and an early October bloomer of some merit. It has been illustrated in the leading American gardening papers, and should be a valuable companion to Mrs. E. G. Hill, which came from the same source.

CHRYSANTHEMUMS IN AUSTRALIA.

THESE flowers seem to be holding their own in the Colonies. A friend in Sydney has just sent me a recent number of the "Australian Agriculturist," in which appears a large illustration of Mr. Ernest Calvat's seedling, Mdle. Thérèse Rey, which is now being distributed in Australia. Chrysanthemum shows are reported to have been held at Sydney, Goulburn, Cootamundra, and Albury. The one at Sydney is said to have been a great improvement on those previously held there in many respects.

RECENT CHRYSANTHEMUMS.

The above is the title of Bulletin No. 91 of the Horticultural Division of the Cornell University, and is edited by Mr. Michael Barker. It contains notes on varieties grown at Cornell last year, the majority of them being, of course, of American origin, although we notice among them Beauty of Exmouth, Charles Davis, Enfant des Deux Mondes, and William Seward. Mr. Barker, who is also the editor of the "American Chrysanthemum Annual," deals with methods of cultivation and insect friends and enemies. There are several illustrations in black and white.

AMERICAN CHRYSANTHEMUMS.

Mr. Michael Barker, the editor of the "American Chrysanthemum Annual," gives a list of new American varieties for 1895, which numbers sixty-seven. But the total, if we include what are now known as Californian seedlings, will probably be much larger. Along the Pacific coast are raisers and importers who introduce into the States from Japan the best of the new kinds as they come out there, and many of these come to be looked upon as American varieties. If these are included it may be safely estimated that there will be no fewer than 150 new Chrysanthemums for 1895 distributed by the American growers.

CHRYSANTHEMUM MADAME LUCIEN CHAURÉ.

There is a coloured illustration of this variety in a recent number of the "Moniteur d'Horticulture" of Paris. It was raised by M. de Reydellet last year, but like many others from this grower of late is hardly known to English cultivators. Seven or eight years ago we had a fair proportion of M. de Reydellet's seedlings on our exhibition tables, but the keen competition of the American and English varieties seems to have placed his recent seedlings at a disadvantage. As depicted Madame Lucien Chauré is a Japanese flat-petalled variety of only medium size, but the colour is warm and rich, a mingling of violet crimson buff, tipped golden yellow. It was certificated at Chambéry.—P.

THE R.H.S. EXAMINATION PAPERS.

I AM glad that "Reader" (page 500) has offered a little criticism, encouragement, and correction to my answers on page 470. I may tell him I was not a candidate at the recent examination. With reference to the absorption of food by the roots of plants, "Reader" says that the assumption that roots absorb compounds through their surfaces does not accord with scientific teaching. I infer he does not challenge the statement that compounds do constitute the food of plants. Plants I know do not receive their food in a solid form, it must be either in a liquid or gaseous form. Certain chemical elements combine to form chemical compounds, says Mr. G. Abbey in the *Journal of Horticulture*, and as such are imbibed by the roots of plants. He also says that they receive the food by the absorbent surfaces of the roots.

I did not say that the "spongioles" were the only medium by which the food of plants was received. I am fully aware that the root's hairs are of considerable importance, but I likewise claim that the spongioles are of equal importance as absorbents of moisture, which of course is food to the plant. Thompson's "Gardeners' Assistant" says that "The function of spongioles consists in absorbing moisture and conveying it into the structure of the plant." Further, "Spongioles absorb fluids with great force." I would further ask "Reader," What causes Calceolarias to collapse suddenly when in full growth and flower? My answer

is the loss of the spongioles. How? By being bitten off by leather jacket grubs in the soil. Having an attractive bed of *Calceolarias* in full flower, I was curious to know the reason why a few plants here and there were drooping and withering beyond renovation. I pulled them up. The roots seemed healthy, but all the extremities were gone, cut clean off. I searched the soil and found specimens of this grub, which I doubt not is the cause of the destruction. This, to me, is a convincing proof of the immense assistance the spongioles are to plants as feeders and sustainers of life.

I think I have demolished "Reader" on this point, but I will concede him his correction on the fertilisation of the Pea flower, thanking him for the information.

With reference to answer 4 I should not advise, when deeply moving soil by trenching, the practice of burying all the good surface soil and bringing the barren inert material to the top. I would rather keep the layers of soil in their original position. There is, however, I consider, no harm in bringing up a little of the subsoil, even if it is poor, and mixing it with the rich surface.

"Reader" does not say what he would style an Onion. Perhaps he would term it a bud containing future growth in embryo. The question expressly states, "What organs of the plant are represented by an Onion, &c.?" Strictly speaking, then, an Onion bulb represents all the organs of the plant stored up within itself in an embryonic state. I admit that many of the questions could be amplified to a considerable extent, but this, I take it, is not the object of the framers of the questions. They need plain, brief, and condensed answers.—E. D. S.

HOLDING SOIL.

In the common acceptation of the term, holding or retentive soil is that which is stiff or clayey. That it is well entitled to that description in wet weather or in the winter there can be no doubt, but how often is the term a misnomer in drought such as of late has been so severely experienced. Only those familiar with stiff soils know how hard baked they become under drought, and how rapidly, because of that baking, they part with their reserve of moisture. That arises very much from the natural tendency of all soil of a stiff nature in baking to contract, and thus produce fissures or cracks all over the surface and running down several inches. It is in such cases impossible for soil to retain moisture long. Of course were the surface freely hoed or stirred these cracks would be filled or covered, but that hoeing or stirring is one of the things next to impossible once stiff soils are parbaked. Literally they are as hard as ordinary roads.

As this is the normal state of stiff soils under drought, it is not correct to term them holding, seeing that they fail to prove so at the most trying periods of the summer. Even watering of such soils so long as rain and cloud are absent, and the sun manifests great heat, only leads to making matters worse than before, unless the moistening can be deep and thorough, and then the surface being stirred, it is covered with a mulch of manure. In that way not only is baking checked, but moisture is retained. But whilst light or sandy soils are not termed holding or retentive because they do not retain moisture as clay does in the winter, yet it is found in heat or drought such soils are far more retentive of moisture than are stiff ones. This arises first from the practical incapacity of soils of sandy nature to bake or contract; and, second, because of the great ease with which a loose surface can be obtained.

We have had in the home district a period of drought of unusual duration. Practically there has been little or no rain worth mention for fully five months. We have, too, had of late great heat, accompanied by very drying winds, hence the moisture-holding nature of soils under crops has been well tested. In the spring I planted at Mitcham, in each case on soil having about equal manurings in previous seasons, ten rows of Potatoes in many sorts, and on three diverse soils; sand, lying high, and fully exposed to sun and wind; black bog, where slightly shaded; and clay, also very slightly shaded. A few days since I examined these respective plots, and found on the sand capital growth in each case, and the soil beneath the loose surface, which was of course very dry, apparently nice and moist, indeed much exceeding in that respect my expectations.

I found a similar state of things on the black or bog ground, which, too, had a light surface, whilst on the clay the growth was in all cases a week later, the soil being terribly hungry, and very dry. Now these conditions exactly reflect what is ordinarily found on similar soils of fair average depth. That being so, we should not refer to these stiff clay soils or holdings, as they seem to be the first to give out under drought. Certainly nothing tends so much to the retention of moisture in heat as being enabled to produce a loose friable surface.—A. D.

ROYAL BOTANIC SOCIETY.

FLORAL FÊTE.

THE above fête was held at Regent's Park on Wednesday, June 12th, and as a large number of the exhibits came direct from the R.H.S. meeting held at the Drill Hall on the previous day the display of bloom in the large tent was an exceptionally fine one, there being magnificent collections of Roses, Orchids, and hardy flowers.

Messrs. F. Sander & Co., St. Albans, sent an excellent group of Orchids and rare stove plants. Many of the Orchids and other plants received certificates of merit, including *Odontoglossum mulus*

Sanderianus, *Phaius Owenianus*, *Miltonia vexillaria* F. W. Moore, *Thunia Veitchi*, *Dracaena Sanderiana*, *Begonia Rajah*, and others. Mr. B. R. Davies, Yeovil, staged an effective group of double tuberous *Begonias* arranged with Maidenhair Ferns. From Messrs. R. Wallace and Co., Colchester, came Irises in quantity and *Mariposa Lilies*. Mr. Frank Cant, Colchester, staged a fine display of cut Roses, as also did Mr. G. Mount, Canterbury. Messrs. Sutton, Reading, staged *Gloxinias*, well grown and in great variety. Messrs. J. Cheal & Son, Crawley, sent a collection of hardy flowers, which included Poppies, Violas, and others. Another effective group, comprised of *Pæonies*, Irises, *Liliums*, and other hardy flowers, came from Messrs. J. Veitch & Sons, Chelsea.

Messrs. J. Laing & Sons, Forest Hill, staged hardy flowers in great variety, and also a fine miscellaneous group, which contained *Crotons*, Palms, *Caladiums*, Ferns, *Begonias*, Orchids, *Gloxinias*, and others, all tastefully arranged. Messrs. Barr & Son, Covent Garden, were represented by a fine group of *Pæonies* and other hardy flowers, the effect of which was exceedingly bright. Mr. H. B. May, Edmonton, sent a group of *Gloxinias* tastefully arranged with Ferns. A large collection of hardy flowers came from Mr. T. S. Ware, Tottenham, conspicuous amongst which were *Lilium colchicum*, *Papaver nudicaule*, *Saxifragas*, and *Campanulas*.

A large exhibit of *Pæonies*, *Delphiniums*, and other flowers came from Messrs. Kelway & Son, Langport, the effect of which was fine and varied. From Messrs. Laxton Brothers, Bedford, came several boxes of Strawberries, containing excellent examples of *Monarch*, *Sensation*, and *Royal Sovereign*. Fine well-bloomed *Gloxinias* were staged by Messrs. J. Carter, High Holborn. Messrs. Hugh Low & Co., Clapton, exhibited a handsome group of Orchids, containing *Cattleyas*, *Odontoglossums*, and others, with Ferns, *Caladiums*, and Palms. From Mr. Chas. Turner, Slough, came a group of Fancy and Show *Pelargoniums*, thickly covered with bloom, together with a fine exhibit of Roses. Messrs. W. Paul & Son, Waltham Cross, made a fine display with Roses, both plants and cut flowers, containing many beautiful varieties. Mr. R. Scott, gardener to Miss Foster, The Holme, Regent's Park, staged a large and handsome group of plants, comprised of *Liliums*, *Caladiums*, Ferns, *Spiræas*, Palms, *Begonias*, *Coleus*, and others. Another effective group was exhibited by Mr. J. C. Clarke, gardener to Ludwig Mond, Esq., Regent's Park. A handsome group of *Caladiums* and other foliage plants—arranged with *Spiræas*, *Heliotropes*, *Hydrangeas*, and others—came from Messrs. J. Peed and Son, Norwood.

Floral Parade.—In spite of the threatening appearance of the weather the Children's Floral Fête was a great success. The presence of Their Royal Highnesses The Prince and Princess of Wales, the Duchess of York, and the Duke and Duchess of Teck, was sufficient to insure a large gathering of well dressed ladies and gentlemen. The prize for the best exhibition on the parade was awarded to Mrs. Bernard for a pony and carriage tastefully decorated with flowers and Grasses. Many other charming arrangements were also noticed in the shape of mail carts, pony carriages, and Sedan chairs, dressed with Daisies, Pinks, *Marguerites*, red Roses, Irises, and other flowers.

The groups of children representing different subjects, such as "The Festival of Flora," "Stolen by the Fairies," "Buttercups and Daisies," and "Lalla Rookh," were much admired, as also were other designs representing "Britannia" in Oak leaves and Roses; "Oxford and Cambridge," in the shape of a young lady on horseback, dressed with blue Cornflower trimmings; "Wild Poppy," and "Forget-me-not."

FRUIT GROWING ON A LARGE SCALE.

THE excellent paper on this subject, contributed by Mr. Charles D. Wise to the Journal of the Royal Agricultural Society, has been published in pamphlet form by Messrs. Spottiswoode & Co., and will be acceptable to many. The author, as manager of the celebrated fruit plantations at Toddington, is well entitled to be listened to, and this is what he says:—

Owing to the great increase in the fruit-growing industry a good deal has been written during the last few years on fruit farming and the enormous profits to be made. The bulk of these reports is greatly exaggerated, although under certain conditions, which I will endeavour to set clearly before you, fruit growing yields a fair return on capital expended. Many people think that fruit trees have merely to be planted, and that profitable returns in due course are assured; and it is only by experience, and in many cases by loss of capital, that they find that fruit growing is a *business* and a *science*, and that, as is the case in other trades, the apprenticeship has to be gone through and the business thoroughly studied—I do not say *learned*, as the fruit grower learns something new every day, and his lessons will never be over.

Why do not farmers go in for fruit growing? This question is asked again and again. I think the simple answer is that, even if they felt inclined to do so, they do not know how to set about it, and not only do they not understand the business, but where is the necessary capital to come from? and even should that be forthcoming, it is not on every farm that land adapted for fruit culture is to be found.

We have also these important considerations:—

1, There are only selected areas where you can hope to succeed so far as soil, shelter, and situation are concerned.

2, Fruit growing, especially on a large scale, should be within reasonable distance of a good market or railway station.

3, The tenant must be prepared to stand out of his capital for certainly four years, or perhaps longer, before a fair return is obtained; and no tenant should plant on a large scale except under a lease of at least twenty-one years, and with compensation for improvements fully assured at the end of his tenancy.

Given suitable soil and situation, with railway accommodation at hand and security of tenure, I am of opinion that hundreds of acres of land might be planted with fruit, to the advantage of both landlord and tenant. The landlord should give every encouragement to a tenant who wishes to plant fruit, either by finding the trees or by giving him written permission to plant under the Agricultural Holdings Act, which will entitle him to obtain compensation at the termination of his tenancy. It is most certainly to the interest of the landlords to meet tenants in this way, as by the planting of fruit the value of their property is enormously increased.

That is not the teaching of the mere faddist or sensation monger, who seeks to dazzle with glowing platitudes, misleading more persons than he can usefully teach, but deduction from experience. Under favourable conditions and conducted with knowledge, Mr. Wise believes fruit culture to be to a reasonable extent profitable, and goes on to say:—

We hear a great deal of what the Royal Commission on Agriculture is going to do for the tenant farmer; but I fear, unless tenant farmers look after themselves, they will obtain very little help from that quarter; and, although I do not say that fruit growing will be the salvation of the agriculturist throughout the country, I do maintain that on very many farms, if a certain proportion of the acreage were under fruit, it would be to the advantage of both landlord and tenant. A few acres should be planted to start with, and as experience in management is gained the acreage may be steadily increased until the 5-acre plantation soon becomes 50 acres, and a good business is developed. Where agriculturists have planted fruit, and the soil and situation are favourable, we find that the plantations do increase in area, and we may therefore conclude that the tenants are not losing money. In the Evesham district, for example, the fruit-growing and market-gardening industry is extending every year, and the small allotment holders, instead of growing corn, are planting their land with Asparagus or other vegetables and bush fruit, with one or perhaps two rows of Plum trees or other standards round the outside, according to the size of their holdings.

The author treats on the cost of establishing plantations of different kinds of fruit, also of management and gathering, with the amounts realisable, concluding with a good word for jam as follows:—

Assuming that during the next twenty years the acreage under fruit in Great Britain, and the imports, increase as rapidly as during the past twenty years, the question arises as to whether or no the supply will exceed the demand. If we look at the enormous increase in the consumption of fresh fruit, and also of jam, throughout the country (the number of jam factories with their trade increasing each year), and the increase in the population, it hardly seems possible that, at all events for many years to come, fruit growing can be overdone.

Jam is now within the reach of all classes, and if only fresh fruit could be distributed as easily, there would be no fear of markets being glutted. In almost all the large towns throughout the country there are fruit markets, and there are many towns with no fruit markets in which one might be advantageously held, say once or twice a week.

It would be a great advantage to growers if they could pulp down some of their fruit in seasons of glut; this is not so difficult as some people imagine, and is quite worth consideration.

Foreign competition (with the exception of Apples) ought not to materially affect our fruit trade. Soft fruit from abroad cannot be put on the market in as good a condition as the home grown, and as the public taste becomes more educated, the more demand will there be for fresh fruit and pure jams. Jams made from imported fruit and pulp cannot compare with that made from fresh gathered fruit.

We have cited one page out of the twenty-three as a sample of the pamphlet, which may be studied with advantage by persons who are desirous of engaging in the fruit growing industry.



HARDY FRUIT GARDEN.

Summer-pruning Fruit Trees.—It is possible to render great assistance to fruit trees growing on restricted methods by the judicious practice of summer pruning. Pyramids, bushes, espaliers, and cordons all need attention in this respect from the present time in order to subdue the luxuriance of the side shoots, and concentrate the energy which unchecked would be wasted in the production of long shoots. The basal buds on these shoots, which are eventually intended for the future fruit buds, receive through the shortening an increased amount of sap, but any surplus vigour finds an outlet in the upper buds, growths from these being also stopped, and the whole cut back in winter.

Plums and Cherries.—Plums and sweet Cherries furnish a considerable amount of side shoots, foreright shoots, or breastwood as it is termed. The best time for shortening is when the lower leaves have assumed full size. Shorten to the third good leaf from the base, or including the small basal leaves at the fifth leaf. Owing to this restriction spurs will form at the base, and sooner or later become fruitful. Air and light is admitted to the fruit while superfluous vigour has a safety valve in the upper buds, which will probably produce laterals, these also to be pinched back to one leaf when that has attained full

size, and so on with sub-laterals if any are produced. It is not advisable to shorten every shoot on wall Plums and Cherries, because there may be available spaces where suitable young shoots may be trained in at full length, and they would after the second year be in a fruitful condition. Leading shoots should not be stopped where there is room for extension.

Pears.—These may be dealt with next. Where disbudding was partially or wholly neglected a quantity of weak spray may be noticeable in some old trees, which ought to be thinned out entirely, leaving the strongest shoots. A mass of weak shoots serves to crowd the trees, preventing the proper ripening of the buds on the reserved shoots, which require all the light and air possible. In commencing the summer pruning shorten the shoots on the upper parts of the trees first, gradually descending to the lower, leaving weakly shoots to gather strength, if necessary, for a short time longer. Leave four to six full-sized leaves, in this case not counting the small basal ones, which are of little assistance in manufacturing food for fruit buds. Young trees and cordons not fully covering the space available must not have the leading growths shortened.

Apples.—Apples require similar treatment, retaining four to six leaves; but as a rule the early part of July is soon enough to carry out the shortening. Too early stopping might result in the lower buds starting into growth, which must be avoided. Where it is seen that any weak or crowded growths can be dispensed with cut them out entirely. Abundance of light and a free circulation of air among the spurs aid their development, strengthen the foliage, improve its texture, rendering it better provided against insect enemies. Overcrowding is bad for the fruit swelling, as undue shade prevents the utilisation of the sunshine by the leaves which feed the fruit.

Currants and Gooseberries.—Red and White Currants may have the side shoots shortened to three or four leaves, Gooseberries also pruned on the spur system, whether in the open or against walls, being similarly treated. Summer pruning is beneficial, as it admits light to the fruit, and affords an opportunity of obtaining finer bunches of Currants and increasing the size of Gooseberries, though much help is rendered to this end by good ground, as well as assisting the bushes with stimulants and generally adopting good culture. Remove suckers entirely from the roots of Gooseberries, and thin to a few of the best with Red and White Currants if new branches are needed, otherwise they may be cut out. A good selection of sucker growths or shoots from the base of bushes may be left on Black Currants, cutting out exhausted wood after the fruit has been gathered. As the latter is borne entirely on young wood it is obvious that sufficient growth of that character must be retained for the following season and not shortened in any way.

Mulching Fruit Trees.—Bush and pyramid trees, cordon and espaliers in the open, or against walls, that are bearing good crops, and have had the soil moistened effectually, may receive a moderate mulching of decayed manure over the roots, which will largely prevent rapid evaporation from the moist soil, and render frequent watering less necessary. Larger trees in the open that have fibrous roots near the surface will also be benefited, and as small bush fruit trees are usually furnished well with fibrous roots, a manurial mulching will both feed and encourage their remaining near the surface.

Strawberries.—If not yet mulched with strawy material to keep the fruit clean, they should have it applied at once. As a rule, however, it is best to spread manure between the plants early, any fertilising constituents it contains being then washed into the soil and appropriated by the plants, the dry residue remaining affording a clean bed for the fruit to rest on. For the latter purpose only chopped straw has been found useful, while tiles, glass, or forked sticks can be employed advantageously. It is very desirable that the fruit should be supported free from the soil owing to the ravages of slugs and the probability of the ripe fruit becoming gritty from contact with the soil.

Raspberries.—Remove superfluous suckers, and clear the ground of weeds, pulling up the strong ones, but cutting others down with the hoe in dry weather for the sun to wither. Afterwards mulch the ground between with some rich manure, and if possible afford a few supplies of water and liquid manure to each stool, which will materially help the fruit swelling and enhance its flavour when ripe.

FRUIT FORCING.

Vines.—*In Pots for Early Forcing.*—Stop the canes when from 6 to 8 feet long, pinching the laterals and sub-laterals to one joint as produced. Supply water and liquid manure at the roots as required, but only then, keeping neither under nor over-watered, but if anything the first, and see that the foliage is kept clean by judicious syringing, admitting air rather freely in the early part of the day, as this will favour elaboration and the storing of assimilated matter.

Vines Cleared of Grapes.—Syringe occasionally to keep down red spider, thrips, and similar pests; afford water or liquid manure to keep the soil moist. A light mulching of short spent manure will prevent the surface cracking, and the moist surface and nourishment will attract the roots to the surface. Allow a moderate extension of the laterals, and admit air freely above 60°. There is no fear of the wood not ripening, and the difficulty is to prevent the ripening and premature fall of the foliage.

Houses of Ripe Grapes.—These will be the better for a slight shade from powerful sun. Some pilchard or a double thickness of herring nets drawn over the roof lights will mostly be sufficient shade, and a good spread of foliage will assist Black Hamburgs and other black

Grapes in keeping their colour. Moderate moisture will not injure the Grapes if accompanied by free ventilation. Keep laterals fairly under, but a little extension will assist in the retention of the principal leaves, and on their continuance in health depends the maturity of the buds for next year's crop.

Grapes Ripening.—When the berries commence changing colour admit a little air constantly, with sufficient heat in the pipes to maintain a night temperature of 65° and 70° to 75° by day, with 80° to 85° or 90° from sun heat. Avoid an arid atmosphere, damping occasionally, and do not allow the border to become dry. Vines ripening heavy crops will be assisted in perfecting them and storing food for the future by an occasional application of tepid liquid manure, or a top-dressing of some approved fertiliser washed in, operating in the morning, and choosing a fine day, so that superabundant moisture will be dispersed before evening. A light mulching of dry spent material will assist the Vines by securing uniform moisture and keeping the roots near the surface whilst avoiding excess of moisture, and thus preventing cracking. It is a confined atmosphere that does much of the mischief in Grapes spotting and cracking, therefore leave a little air on constantly and increase it early in the day.

Scalding and Scorching.—A gentle warmth in the pipes and a little ventilation constantly, with an increase by the time the sun begins to act on the house in the morning, and somewhat free circulation by day, makes all the difference between scalding and non-scalding, also between scorching and non-scorching. Occasionally Muscats are scalded or scorched when the berries are exposed to the direct rays of the sun in the most carefully ventilated structure, and chiefly at the higher parts of the house, furthest from the hot-water pipes, which points in the direction of atmospheric moisture condensed on the berries during the night, or before air is given, being the cause of the mischief, which is certainly not an ailment, but a cultural defect, an excess of watery vapour, and subsequent heating or scalding. In the northern parts of the kingdom the sun's rays acting through large panes of glass are so powerful that scorching sometimes takes place under the most advantageous conditions of heat and ventilation. It therefore becomes necessary when the Grapes are ripening to afford a slight shade, as that of a herring net over the roof lights, in order to subdue the fierce direct rays of the sun, which not only insures the more even swelling of the berries, but their immunity, other conditions being favourable, from scalding, and the greater regularity of the colouring. Black Hamburgs seem to colour best beneath a good spread of foliage, but all require thorough exposure of the foliage to air and light.

Late Grapes.—There must not be any delay in thinning the berries and bunches. Nothing is so fatal to perfect finish as over-cropping. To burden a Vine with more Grapes than it can swell well and evenly, is to cause it to ripen the fruit later, and leave doubts as to the berries colouring and having that amount of saccharine matter stored in them which secures their sound keeping. Thin well to secure large and highly finished berries, leaving those of the larger berried varieties about an inch apart, the oval-berried kinds not requiring so much room as the round ones; but all should be thinned so that they will have space for swelling to their fullest extent without wedging, and yet be so close that when dished they will retain their form. Loose bunches that show the footstalks are not pleasing, however fine the berries, as those more compact. Some twist the shoulder inwards so as to give sprawling bunches a compact form, something like an inverted sugarloaf. Shy-setting varieties are often thin of berries through the number of stoneless ones that must be removed, to guard against which no pains should be spared in getting the wood ripe and in fertilising the bunches when in flower with Black Hamburg pollen, or that of other free-setting sorts. A pound of Grapes per foot run of rod is usually as many as most Vines can finish well, therefore reduce the bunches so as to give about that weight, and if an error is made let it be on the safe side, as Vines that are overburdened never finish the fruit well, and it is inferior in keeping qualities.

Regulate the Growth.—Allow all foliage to remain that can have full exposure to light, but when the space is fairly covered with leaves keep the shoots closely pinched. An excess of foliage is not good, though it is often encouraged with a view to root action, but it is elaborated juices that build up the structure of the Vine, the crop of the current year and the wood and buds that give the fruit of the next. The foliage should be rather thinner in the case of white Grapes than in black; this more particularly applies to Muscats, which of all Grapes require high elaboration of the sap to insure their assuming the rich golden amber so much prized. Avoid large reductions of foliage at a time; it only tends to induce shanking through the check given the roots.

Keep the growths tied down from the glass and so prevent scorching. Vines extending must be allowed to make as much lateral growth as practicable, always bearing in mind the wood on which the fruit is to be borne next season must have full exposure for its foliage, as it is the principal leaves that elaborate the sap and transmit the assimilated matter that forms the buds at the base. The laterals from these having been stopped at the first joint, they may be allowed to extend afterwards, subject to their not interfering with the access of light to the main leaves.

Watering and Feeding.—Inside borders must be well supplied with water, following in the case of Vines that are carrying full crops and in good, but not too vigorous health, with liquid manure, mulching lightly with short lumpy material, which, if kept moist, will give off ammonia and attract the roots to the surface. If more aliment is wanted supply

sulphate of ammonia where the soil is strong, but not chalky or particularly calcareous; where the soil is light, also very calcareous, use nitrate of soda. From half to one ounce of either of these salts is enough, repeating at intervals of three or four weeks. If the Vines require solidity use superphosphate of lime, say 2 or 3 ozs. per square yard, and if the foliage is pale in colour add half an ounce of powdered saltpetre and one-eighth ounce sulphate of iron. These are best given after the border has been watered, following with a light watering after their application. Do not allow the border to become and remain dry at the surface. Neglect in watering borders that are well drained, and mulching, especially where the Vines are carrying heavy crops, is not only disastrous to the present crop, through inducing attacks of red spider and premature ripening of the foliage, but injuriously affecting next year's crop of fruit. Outside borders may only need a light mulch, but where rains have not fallen, or if dry, give a soaking of liquid manure, or supply water, then a top-dressing of the advertised fertilisers, and wash in lightly whenever necessary.

Temperature and Ventilation.—Cold nights render fires still necessary. All late Grapes thrive best in a high temperature, with abundant food at the roots and a genial atmosphere. Fires should be employed to maintain a night temperature of 65°, and 70° to 75° by day in dull weather. Admit air early, allowing a little ventilation at the top of the house constantly, increasing the ventilation with the temperature. Advance to 85° or 90° with sun heat, at which keep through the day by that means, reducing the ventilation with the declining sun. Close at 85°, damping the paths well then, and again before nightfall. It is well to close for a short time, and afterwards admit a little air, which will prevent a vitiated atmosphere, and allow of the foliage drying in the morning by the time the sun acts powerfully. Late Grapes cannot well be given the fullest advantage of the sun's heat; therefore, make the most of it by judicious ventilation, and aiding with artificial heat so as to keep them in steady progress, avoiding cold draughts or sudden depressions of temperature, as this cause rust and favours the spread of mildew and other pests.

THE BEE-KEEPER.

APIARIAN NOTES.

HEARING is one thing, and seeing another. We read of the glorious weather, and of bees gathering honey in galore, but ocular demonstration shows brown pastures, gardens, fields, and roadways strewn with leaves as if autumn was on us; confirmed by the thermometer sinking to 30° at night for a whole week, railway sheets covered with ice, and the leaves of Walnut trees frosted down, and occasional sleety showers, bees being fed while they remain at a standstill.

Many hives throughout the country are suffering from chloric dropsical fever, which simply means lost hives, no use for this year, and which cannot be satisfactory for another; in point of loss, foul brood cannot be compared to it.

Foul brood is easily dealt with, but as yet no cure is known for chloric dropsical fever. In 1893 at this date surplus honey was the rule. This year, unless in a few cases and fed hives, there are no swarms yet. In 1870-72 about the same date the frost was severe, cutting the Potatoes to the ground, and by the 28th August there was a repetition, being ten days more than two months for tender things to grow, and were barren years for honey.

Water is scarce in the hill districts, as well as in the lowlands, and a spring in my garden was never known to be so low. Birds are desperate for want of it, the sparrows pecking many green vegetables, and the leaves of some trees, and bees when forgotten, in vain, endeavour to sip water from dampish places. Fruit prospects are not so good as they were a month since, and as the Clover is spoiled in some places by the drought, there must be copious rain before it springs and blooms again, which will be out of season. Honey from that source will not be generally plentiful.

In hopes of writing in a better strain, I delayed this copy till the 15th, but the deplorable weather has become worse. The haulm of my Potatoes is frosted to the main stems; many flowers are shorn of their beauty, bright sunshine continues with alternate north-easterly and north-westerly winds, and clouds of dust. The thermometer at midday fluctuated between 55° and 58°, and bees are almost idle or flying about listlessly.

It has always been my practice to prepare young stocks for another year at an early date, simultaneously with supering and depriving, but at present it (unless a favourable change comes) will be my only work, and even that will be performed with some difficulty, as drones are not permitted to live. Feeding one hive more than is necessary will have to be done in order to insure fertile queens. This may be rather too much of a pessimistic view, but we have had similar experience, and cannot forget the

lessons. Bees are only a small item compared to the crops which have suffered already, and those who must suffer are many indeed, and to which sympathy will be but a poor recompense.

I cannot advise what to do with bees more than is in the foregoing—viz., prepare young queens for next year, and be in readiness for any honey flow which may occur.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUE RECEIVED.

Ant. Roozen & Son, Overveen, Haarlem, Holland.—*Dutch and Cape Bulbs.*



* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Beetles on Ferns (*T. V. B.*).—Your specimens reached us too late to have attention this week, and will be examined and reported on in our next issue.

Peach Leaves Eaten (*T. W.*).—The leaves have been perforated by some weevil, which are smaller in the holes than those usually made by the grooved or so-called Vine weevil (*Otiorhynchus sulcatus*); but whatever it is you may ascertain by spreading some sheets on the soil beneath the trees before dark, and when night comes shake the trees sharply, then with a lantern see what has fallen and destroy the pests. The house must be entered cautiously, and the light not used until immediately after the shaking of the trees, then act promptly.

Soil for Tomatoes (*W. H.*).—Spread the soil out a foot or 15 inches thick, or place it in the bed or border and sprinkle on it a peck of quicklime per rod, then stir with a fork. This will make an end of certain parasites likely to be harbouring in the turfy loam, and if none it will be useful from a chemical point of view. Then dress the ground with a mixture of two parts kainit and one part nitrate of soda, both by weight and crushed fine, using 2 ozs. per square yard, and distributing evenly on the surface leave for about a week and then point over, mixing thoroughly. This will make an end of most parasites, and benefit the soil for the Tomatoes, which may be planted when the soil has been turned and mixed for the last time as described.

Beetles on Rose and Apple (*W. P., Chippenham*).—The species is that familiarly called the June bug, or bracken clock, *Phylloperla horticola*. It devours the petals of various garden flowers, also eats those of fruit blooms, and even the immature fruit, as you have noticed; the Strawberry is sometimes infested. All that can be done is to apply some solution that makes the buds bitter or distasteful to the beetles, such as tobacco water, solution of softsoap with petroleum, decoction of quassia, or Gishurst compound in the proportion of 1 oz. to a gallon of water. It is at night they chiefly feed, and after dusk quantities of them may be taken in their season of flight by searching for them with a lantern, and shaking trees or shrubs that are attractive.

Rose Leaves Curled (*J. L.*).—The Rose leaves have the outgrowths of a blister fungus (an *Exoascus*), and closely allied, if not identical, with Peach-leaf blister fungus (*E. deformans*), but there are no blisters, hence the presence is, perhaps, accidental as it certainly is a new host for the parasite. The outgrowths, however, are so few as to scarcely account for the downward infolding of the leaflets, and there is still fewer mycelial hyphæ (threads), which are comparatively large. There is also the fine threads of the worst pest of the Rose—a fungus nearly allied to that of the Potato disease—*Peronospora sparsa*, which we have only (as yet) found on plants under glass, but we failed to find the outgrowths so essential for identification, yet there is both the mycelial hyphæ and the corkscrew-like threads in which the resting spores are produced. If the fungus develops further—produces brown spots on the leaves—you may forward specimen, or if those to hand develop anything further we shall be pleased to report thereon. The fasciated Rose shoot is merely a freak of Nature, but such abnormalities are frequently caused by the intervention of fungi, *Exoascus* species giving rise to witch knots.

Insects Attacking the Stems and Roots of the Brassica Tribe (*Muntham*).—The insects in both specimens are the maggots and pupæ of the Cabbage fly (*Anthomyia brassicæ*). It is the maggots that do all the mischief, which is one of the most common infestations and malignant to which cultivated Brassicas are subject. The presence of these maggots may be easily detected by the flagging and change of colour of the leaves. The maggots are hatched from eggs deposited on the stem, and when full grown they leave the plants and turn in the earth into pupæ, from which the flies emerge in about a fortnight or three weeks. These are of an ashen grey colour, the male darker than the female, and in general appearance resemble the Onion fly, but are smaller. It is most common in its attacks on plants that are grown in rich and the same ground for a number of years, hence the best preventive is crop rotation and liming the land.

Grapes Colouring (*Constant Subscriber*).—When Grapes commence colouring they swell considerably up to the ripening tint pervading the skin of the berries, when they, of course, cease to enlarge. To aid the swelling moderate moisture is necessary, and at closing time more is perhaps done than at any other period of the day, as it checks evaporation, hence somewhat early closing (so-called) is advisable; but this, in the ripening stage, means reducing the ventilation, leaving a little air on constantly, which being done will prevent the sweating you allude to, and is absolutely necessary to prevent "spot," as well to allow evaporation from the berries to proceed, yet modifying the ventilation so as to get plenty of size into the berries without interfering with the colouring process—the transformation of the chlorophyll into the ripening hues. The moisture and growing conditions are thus gradually withdrawn, and this is far better than reducing the moisture all at once. When the Grapes begin to colour reduce the moisture and admit air more freely, leaving the first off by degrees and increasing the latter gradually, so that the one can be left off altogether, or nearly so, when the Grapes are evenly coloured, and the other given freely, with a little constantly.

Azaleas and Camellias after Flowering (*H. J. and Wreath*).—Retain the plants under glass until the growth is perfected and the buds formed, when they may be stood outdoors on a base impervious to worms. They will be all the better for a few weeks' sojourn outdoors, care being taken if they have been grown in a shaded house to afford a slight shade from bright sun until they become used to the exposure. They should be duly supplied with water, and be syringed in the evenings of hot days. From the beginning to the middle of July is about the time Azaleas are sufficiently advanced in growth and bud for placing outdoors. They should be housed in September, before the weather becomes very wet and cold. Camellias should be kept under glass and treated similarly to the Azaleas until their buds are well set, and may then be placed outdoors in a sheltered situation and shaded from midday sun, duly supplying them with water and returning under glass towards the close of September. To flower during the winter their growth required to be made somewhat early, but this habit they will acquire after a few years' culture. If your situation is cold they should not be placed outdoors, but be kept under glass constantly, taking care not to overwater, nor, on the other hand, to allow to become too dry, and giving all the air possible after the buds are set.

Tomatoes Diseased (*A. B.*).—The "fruits" are affected by blotch or black stripe fungus, there not being anything but the mycelial hyphæ, and these are forming "knots" along them, which indicate mature condition of *Fusarium solani* or *lycopersici*, this particular disease being carried over from year to year in the seed of the Tomato, and in the soil by the resting spores. The infection, however, of the fruits before us has not been effected from the root or stem, for the footstalks are perfectly innocent of any fungal growths; but the spores of the parasite have germinated on the decayed organs of the flower, and the germinal tubes or pro-mycelium pierced the then tender cuticle, and growing within the tissue just beneath the epidermis, have produced the blotch. This is a new phase of the subject, and a most important one, as it is clear the infection may be either from the soil—communicated by the growths from the resting spores (the *Hypomyces solani* or *lycopersici*) or by the top—by means of the first-stage spores (*Diplodactylum solani* or *lycopersici*). The preventives therefore must be twofold: (1) Disinfect the soil, nothing answering better for either Potatoes or Tomatoes than quicklime; and (2) dust the plants with air-slaked lime quite dry and flowy, repeating as necessary to keep the foliage and fruit coated with lime. If you add one part per hundred of sulphate of copper, and mix thoroughly, you may defy this and other Tomato pests. The plants must not be syringed. Affected plants should be pulled up and burned, using quicklime freely where they have been, after removing as much of the roots as practicable. The white worms are injurious, but they succumb to dressing with quicklime.

Assortment of Flowers for Winter Cutting (*Wreath*).—For early use there is nothing better than Chrysanthemums, which you may procure in plants, such as Madame Desgrange, Lady Selborne, Mrs. G. Rundle, Empress of India, Mdle. Lacroix, Florence Davis, Beauty of Exmouth, Alba Fimbriata, Elaine, Ethel, Fair Maid of Guernsey, and Elsie. These will afford a supply up to Christmas, the plants being kept outdoors until the beginning of October. Tree Carnations may also be secured in plants; Mrs. Reynolds Hole, Miss Lizzie McCowan, Mrs. Henry Cannell, Miss Jolliffe Improved, Uriah Pike, and Germania, keeping them outdoors until October, their blooming depending on the

advanced condition of the buds, giving them the lightest position possible. *Primula sinensis alba plena*, grown well, affords a quantity of flowers for cutting, as also does the *Cyclamen persicum* vars. of the improved strains, which may be raised from seed. Roman Hyacinths procured early, potted and grown on, will flower about the new year or from December, and are amongst the finest plants for cutting. *Cinerarias*, sowing seed early and growing the plants in frames, give a quantity of useful flowers during the winter. *Eupatorium riparium* is very free flowering, plants being rooted early in the spring and grown on give a number of sprays. Christmas Roses (*Helleborus niger* and var. *maximus*) in strong clumps, lifted and potted in early autumn, flower finely under glass. There is also *Calla* (*Richardia*) *æthiopica*, grown well during the summer and potted up in late summer, flower well during the winter. These are some of the most desirable, but their winter flowering depends on the good management during the summer previous.

Insects on Pseudo-bulb and Root Stem of *Lælia albida* (J. F.).—The insect on the pseudo-bulb is white scale (*Aspidiotus orchidarum*); that on the root, stem, and part of pseudo-bulb which has been covered by the potting material is the somewhat uncommon Orchid-root mealy bug (*Dactylopius orchidarum*), a singular insect with a dirty yellow body, surrounded by a broad white border in divisions, with ribs like a fan; long, somewhat stout antennæ, having three pairs of legs, rather thick and hairy, and an enormous beak with which to bore into the stems. It is just visible to the naked eye, and as seen through a pocket magnifier somewhat resembles a small mealy bug. It is an interesting but very destructive pest. The best means of riddance is to shake the plants out and wash them carefully with hot water, but not hotter than the hand can be borne in it half a minute, using a brush so as to dislodge the pests, then use an insecticide against the scales and mealy bugs, dislodging, and washing again in clean warm water. Methylated spirit may also be used, merely moistening a small brush with it, and then dressing the affected parts. There is danger of injuring the young roots if the methylated spirit contains a large amount of spirits of tar, but we have not found any bad consequences follow when the spirit was diluted with an equal amount of soft water. By either process both insects may be destroyed. Ants do not do any good, they feed on the secretion of the other pests, scavenging being the measure of their usefulness.

Tomato Diseases (Southampton).—There is no doubt your plants are attacked by two distinct kinds of fungi—a slime fungus, which is taken from the soil by the roots, the Potato fungus which is produced by spores coming in contact with the leaves under favourable conditions for germination. Many Tomato growers have found by costly experience that it is necessary to change the soil, in some places every year, in others every two years, according to its nature and other circumstances. It is also known that one form of disease is communicable by seeds in which fungus spores rest. Why one plant should be taken before another is as unexplainable as the precise reason why one person takes the influenza before another or any other contagious malady. It is a question of the fitness of the subject or plant, as the case may be, as a "host." For practical purposes it is enough to know that your houses "swarm" with fungus spores, and if the atmospheric conditions, and the state of the plants, are favourable for their germination they will germinate, otherwise they will not. This is what all experience teaches both in nature, as displayed by outdoor crops, and in cultivation under glass. With suitable houses the Potato disease fungus is practically controllable. With fungus in the soil the case is more difficult to deal with. As you have evidence satisfactory to yourself that the plants you are destroying "have been infected, not from the soil, but from other diseased plants in the house," so much the better, as we should regard it, having the future in view, as the lesser of two evils, however great, and much to be regretted, the present may be. Your houses will need to be thoroughly cleansed and disinfected when they are empty, and it would be extremely prudent to remove as much of the soil as you can and bring in fresh. If this is moderately fertile and made firm, also the ventilation is as it should be for promoting firm growth—"hard" stems and leaves, we should have small fear of the Phytophthora taking possession of the plants. We have just been inspecting Tomato plants in three houses at Chiswick. They are quite different in character, as containing far more woody tissue, than those you have sent. We have not the slightest fear that the Chiswick plants will be invaded by the Potato fungus. They are this year grown in pots, but these are only half filled with soil till many fruits are set. They are thus "firm," short-jointed, and fruitful, and not until good crops are swelling is more soil added. Most persons, we do not say all, whose plants are smitten with disease grow them too luxuriantly and "soft" in their early stages. One of the largest Tomato growers in England, and who has had profitable crops and no disease for twenty years, almost, as many persons think, starves his plants till a good set of fruit is swelling, then, and not till then, feeding them. Nothing would induce him to change his method, because it pays. The formula for making Bordeaux mixture has been given again and again. The full strength has been found to injure tenderly grown Tomato plants. The strength recommended by Mr. Abbey, whose formula you require, will be found on page 282, March 28th of the present year. The preparation of carbonate of copper solution is given in the same paragraph; anti-blight is also referred to, but neither one nor the other can restore plants in which the fungus is so firmly established as those which you have sent. We are thoroughly convinced that if the advice there given had been followed at the time and subsequently, in conjunction with otherwise good cultural management, that

your plants would not be in the sad condition they are now. Preventive measures can alone be effectual in combating successfully fungoid enemies that attack Tomatoes and other plants.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (J. J. C.).—1, *Viburnum Lantana*; 2, specimen insufficient; 3, *Viburnum Opulus*. (A. McMillan).—*Bouvardia trifolia*. (Somerset).—Roses are florists' flowers, that can only be named by comparison in a large collection. (B. F.).—1, *Veronica buxifolia*; 2, *Dianthus sylvestris*; 3, *Heuchera sanguinea*; 4, *Geum miniatum*; 5, *Inula glandulosa*; 6, *Linaria dalmatica*. (R. O.).—1, *Cypripedium barbatum*; 2, *Cattleya gigas*; 3, *Epidendrum vitellinum majus*. (F. C.).—Specimen insufficient, send when in flower; 1, possibly a *Cotyledon*; 2, a *Crassula*.

COVENT GARDEN MARKET.—JUNE 19TH.

HEAVY supplies of Strawberries from all four counties—Hants, Essex, Middlesex, and Kent—to hand, completely glutting our market, and prices have fallen considerably. Grapes have suffered in consequence, and are with difficulty cleared. Peaches have been in demand, coming short.

FRUIT.

	s. d.	s. d.		s. d.	s. d.				
Apples, Nova Scotia, per barrel.. ..	10	0 to 21	0	Cobs. per 100 lbs.	0 0 to 0 0				
„ Tasmanian, per case	5	0	11	0	Grapes, per lb.	0 6	2	0	
Asparagus, English, per bundle	1	0	3	0	Lemons, case	10	0	15	0
					Peaches, per dozen	6	0	13	0
					St. Michael Pines, each	2	0	6	0
					Strawberries, per lb.	0	2	0	8

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb. ..	0	6	to	0	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	0	Onions, bushel	3	6	4	0	
Carrots, bunch	0	3	0	4	0	Parsley, dozen bunches	0	3	0	0	
Cauliflowers, dozen	3	0	6	0	0	Parsnips, dozen	0	0	6	0	
Celery, bundle	1	0	1	3	0	Potatoes, per cwt.	0	4	0	0	
Coleworts, dozen bunches ..	2	0	4	0	0	Salsify, bundle	1	0	1	6	
Cucumbers, dozen	1	6	3	6	0	Seakale, per basket	0	0	0	0	
Endive, dozen	1	3	1	6	0	Scorzonera, bundle	1	6	0	0	
Herbs, bunch	0	3	0	0	0	Shallots, per lb.	0	3	0	0	
Leeks, bunch	0	2	0	0	0	Spinach, bushel	1	0	1	6	
Lettuce, dozen	0	9	1	6	0	Tomatoes, per lb.	0	4	0	7	
Mushrooms, punnet	0	9	1	0	0	Turnips, bunch	0	3	0	6	

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.	
Arum Lilies, 12 blooms ..	3	0	to	4	0	Pansies, various, dozen				
Azalea, dozen sprays ..	0	6	1	0	bunches	1	0	to	2	0
Asparagus Fern, per bunch	2	0	3	0	Pelargoniums, 12 bunches	6	0	9	0	
Bouvardias, bunch	0	6	1	0	Primula (double), doz. spys.	0	6	1	0	
Carnations, 12 blooms ..	2	0	6	0	Ranunculus, doz. bunches	1	6	2	0	
Eucharis, dozen	4	0	6	0	Roses (indoor), dozen ..	0	6	1	0	
Gardenias, dozen	3	0	4	0	„ Moss (French) per doz.	1	0	2	0	
Geranium, scarlet, doz.					„ Tea, white, dozen ..	1	6	2	6	
bunches	6	0	8	0	„ Yellow, dozen (Niels)	3	0	6	0	
Lilac (French) per bunch	4	0	4	6	„ Safrano (English),					
Lilium candidum, dozen					dozen	1	0	2	0	
blooms	1	0	2	0	„ Yellow, dozen blooms	1	6	2	0	
Lilium long iflorum, dozen	3	0	4	0	„ Red, dozen blooms ..	2	0	4	0	
Marguerites, 12 bunches ..	1	6	3	0	Smilax, per bunch	4	0	6	0	
Maidenhair Fern, dozen					Spiræa, dozen bunches ..	4	0	6	0	
bunches	6	0	8	0	Stephanotis, dozen sprays	2	0	3	0	
Orchids, dozen blooms ..	1	6	12	0	Tuberoses, 12 blooms ..	0	4	0	6	

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor, Vitæ (golden) dozen	6	0	to 12	0	Hydrangeas, per dozen	12	0	to 42	0
Aspidistra, dozen	18	0	36	0	Lobelia, per dozen	4	0	6	0
Aspidistra, specimen plant	5	0	10	6	Lycopodiums, dozen	3	0	4	0
Calceolaria, per doz.	6	0	9	0	Marguerite Daisy, dozen	8	0	10	0
Coleus, per doz.	6	0	9	0	Myrtles, dozen	6	0	9	0
Dracæna, various, dozen	12	0	30	0	Palms, in var., each	1	0	15	0
Dracæna viridis, dozen	9	0	18	0	" (specimens)	21	0	63	0
Euonymus, var., dozen	6	0	18	0	Pelargoniums, per dozen	10	0	15	0
Evergreens, in var., dozen	6	0	24	0	" scarlets, per dozen	3	0	6	0
Ferns, in variety, dozen	4	0	18	0	Rhodanthe, per dozen	4	0	6	0
Ferns (small) per hundred	4	0	6	0	Roses, per dozen	8	0	24	0
Ficus elastica, each	1	0	7	0	Schizanthus, per dozen	6	0	9	0
Foliage plants, var. each	2	0	10	0	Spiræa, per dozen	6	0	10	0
Geraniums, Ivy, per dozen	7	0	10	0					
Heliotrope, per dozen	6	0	8	0					

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, London, W.



TABLE POULTRY.

To our oft-repeated advice to rear more chickens and produce more eggs, simply because home-raised produce of this kind is always in high demand—commands a higher price than the imported article, and, best of all, is always profitable—we have been told many a time that if every farmer went into this branch of farming largely there would be a glut in the market and down would go prices. Mere argument, and nothing more, is such talk; the glut appears as far off as ever; chickens and “eggs from our own farm” are dearer than ever.

On June 8th we were asked 9s. and 12s. a couple for chickens in Leadenhall Market, those at 9s. being miserable little spring chicks not half grown. On the same date the price at Francis’ Stores, Clapham, was 14s. and 16s. a couple; at a fashionable West End poulterer’s they would be much dearer. Taking the Leadenhall Market prices as a safe guide, we give them as reasonable, having regard to the fact, well within our own experience, that higglers will give 7s. to 8s. a couple to the breeder for well-grown spring chicks nine or ten weeks old. We have known them do so at the cottage doors of our own workmen in Sussex. Judging from the appearance of the chicks on sale at Leadenhall, most of them are sent to market as purchased from the breeder, because of the demand and high price. But there can be no doubt that when the chickens are raised early, and are well managed, they may be rendered much more profitable.

It is well known that healthy, kindly chicks, will lay on 2 lbs. of flesh in three weeks if shut up and crammed; flesh, too, that is quite first-rate in quality, and which has been pronounced by competent judges to be better, both in colour and flavour, than that found on chickens not so treated. Ground oats, milk, and Australian mutton fat, imported for soap-making, and costing 30s. per cwt., is the fattening mixture that answers so well.

Failures with early eggs and early broods are probably more owing to a common want of proper accommodation, of really good poultry houses, than anything else. Not half enough attention is paid to the provision of warm, light buildings; of adequate shelter for poultry in winter. Among other causes of failure are the keeping of young broods in the fœtid atmosphere of a close coop for ten or twelve hours at night, coops left on the spot too long, food thrown on the ground and eaten soiled by the excrement of the fowls. Not only should the coops be placed on a fresh, unsoiled part of the farm every year, but they should be moved daily, and be well ventilated always. They can be made quite safe from foxes without being shut in so closely as to exclude fresh air. Shelter, thorough cleanliness, pure water, fresh air, wholesome food, and proper feeding are the points which in the main bring success. At one time our greatest difficulty was the serious mortality from gapes; a little attention showed that it could be altogether prevented by placing the broods as they were hatched right away on fresh land free from taint. This was at an old home farm where the mortality among quite young chickens from this disease every year had become so great that it was a difficult matter to rear chicks at all.

In breeding for table poultry avoid what are known as show birds. We want plump, hardy chickens, and get them by crossing carefully selected Dorking hens with an Indian Game cock. Without care in selecting the hens there may—there often are yellow-skinned chickens, but with healthy

white-legged hens we have from this cross chickens with white skin, remarkably plump breasts, and with very little waste. Have a change of cock birds every year, as it is certain that in-and-in breeding leads to much of the loss and disease among farm poultry. When the chickens are not sold off or used quite young the sexes should always be separated, and also kept apart from other fowls. On home farms, especially where birds that are exceptionally large in size are much valued for the household supply if they are as plump and tender as only young birds can be, it always answers to do this, and from a yard of cockerels so kept apart really fine birds are always forthcoming.

Such systematic management as we have indicated is a very different thing to the ordinary rough and ready practice that prevails among most farm poultry. With a proper system, and the exercise of due care and forethought, table poultry of a superior kind ought to be forthcoming in such abundance as to cause a full home supply, and a profitable sale at market.

WORK ON THE HOME FARM.

Now that cows and cattle are out of the yards, let the first opportunity be taken to thoroughly cleanse the interior of all buildings used for them. The best wash for the walls of such buildings consists of three parts of quicklime and one part of salt. This gives a surface as hard as cement, and to any part at all difficult of access it can be applied by means of a syringe or garden engine. We do this to the interior of pigstyes frequently, and also take special care to have a clean dry floor, preferably of concrete, so as to avoid risk of cramp, especially to young pigs. These are jobs that the workmen can do on wet days very much to the purpose, and we make it a rule never to suffer the interior of any building used for live stock to become offensive or unsightly from filth.

Sheep require close attention now, so that any case of fly-striking may be dealt with at once by a free use of Cuff’s dressing. They should be seen twice daily, and be looked over quietly and carefully. To the practised eye fly attacks are generally evident by the restlessness of the sheep, so that a careful look round may suffice, but if there is the slightest doubt let the sheep be at once got into a fold and examined closely.

The safety of drilling Cattle Cabbage and Kale is very apparent as the weather continues so dry, thinning and hoeing being all that is required; then, too, the plant has no check from being transplanted, and if the soil is really as rich as it ought to be the plant is well nourished, and grows away without material harm from drought. On the other hand, where the plants have to be transplanted from a seed bed, the check in such dry weather is so severe that they are long in becoming established, and make way so slowly as to be a backward crop at best.

Both these green crops are so very useful that it is worth while giving attention to the best way of cultivation. It is mere waste of time to sow or plant them in poor land, as they do no good, and only cause waste and disappointment, but then it is obvious enough that any failure of the kind indicated is owing very much to imperfect culture.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1895. June.	Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.		
Sunday ..	9	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Monday ..	10	30.019	71.8	61.5	N.	62.0	83.7	52.0	118.9	—	
Tuesday ..	11	29.906	64.1	57.4	N.	62.9	72.3	58.1	106.2	—	
Wednesday ..	12	30.007	61.9	52.0	N.	61.9	71.8	49.1	123.8	0.050	
Thursday ..	13	30.050	56.9	49.1	N.W.	61.3	65.7	46.4	116.9	—	
Friday ..	14	30.205	53.7	48.9	N.W.	60.0	68.2	42.9	116.8	—	
Saturday ..	15	30.109	57.3	46.9	N.	59.9	68.8	48.9	118.9	—	
		30.237	53.2	46.0	N.	60.0	66.8	42.2	122.8	—	
		30.076	60.6	51.7		61.1	71.0	48.5	117.8	0.050	

REMARKS.

- 9th.—Sunny and rather oppressive; stormy looking clouds about sunset.
 10th.—Overcast almost throughout, but gleams of sunshine in afternoon.
 11th.—Frequent gleams of sun in morning; alternate cloud and sunshine in afternoon; rain at night.
 12th.—Generally fine and sunny, but spots of rain about 1.30 P.M., and a slight shower about 4 P.M.
 13th.—Generally sunny in morning, but cloudy afternoon.
 14th.—Alternate cloud and sunshine throughout.
 15th.—Cool and generally cloudy in morning; sunny afternoon.
 Another week of drought, the seventh in succession, with less than 0.20 inch of rain. Temperature almost identical with the average.—G. J. SYMONS.

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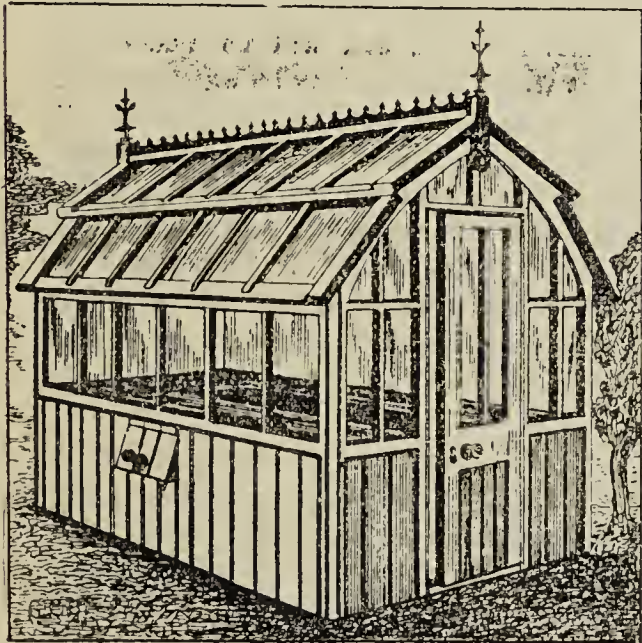
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Journal of Horticulture.

THURSDAY, JUNE 27, 1895.

THE WOBURN EXPERIMENTAL FRUIT FARM.

BY the invitation of the Duke of Bedford and Spencer Pickering, Esq., F.R.S., a party of horticulturists assembled at the Woburn Experimental Fruit Farm in Bedfordshire, on Tuesday, June 18th, to inspect the work commenced there last year, and to inaugurate, as it were, an undertaking which cannot fail to yield results of considerable importance and interest to many persons concerned with the cultivation of hardy fruits in this country. As a project which is calculated to promote an industry certainly unworthily neglected in many districts, as a source of independent and reliable information on disputed or doubtful matters connected with fruit culture, and as a means of providing additional employment for men on the estate and in the county, every thoughtful person must appreciate the feelings which prompted the present Duke of Bedford to accord it his earnest support. It is difficult to imagine how a wealthy nobleman can better utilise a small portion of his resources than by testing for the benefit of his tenants and the estate generally the possible advantages to be derived from an extension of fruit culture, which, when successful in any degree, must greatly increase the producing power and value of land, to the ultimate advantage both of occupier and owner. When the results of such an undertaking are rendered of still wider utility by being placed at the disposal of all interested, it becomes of national importance, and the conductors have the satisfaction of knowing that the work commenced with private means bids fair to rival some of the best establishments of the kind in other countries carried on at the expense of the State.

To the Director, Mr. Spencer Pickering, F.R.S., a gentleman of considerable scientific attainments, must be adjudged the credit of projecting the scheme, and the careful thought he has devoted to the matter is certain to produce useful results. Already much local interest has been excited in a county singularly deficient in fruit culture, and the more enterprising cultivators will not be slow to take advantage of the experience that is being bought for their assistance. When it is shown what fruits succeed in the district, many occupiers of

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land might test the matter for themselves by planting an acre or two, and be guided by the results as to the desirability of extending the experiment. When there is so much good land suitable for the purpose, which at the present time brings comparatively small returns, the most ordinary man of business should be willing to turn his attention in any direction that affords a prospect of better results. If a shopkeeper finds he cannot obtain a profitable price for any article he offers for sale he endeavours to provide a stock of something which will yield a better return, and this is a common sense proceeding which might recommend itself to many besides shopkeepers.

The experimental farm occupies 20 acres of land, chiefly a heavy loam of moderate depth resting upon clay, the surface soil varying somewhat in depth and heaviness in different parts of the field, but it is throughout very retentive of moisture. The land slopes slightly to a brook on the south-west side, and though the difference in elevation amounts to about 15 feet, the meteorological records for the stations at the upper and lower parts of the farm show some interesting divergences, especially in regard to minimum temperatures, which are usually from 2° to 5° lower at the station near the brook than on the higher ground. On the north-west and north-east sides the boundaries are formed by old Quick hedges, but the other two sides are fenced and open, with the exception of a few small Oak and Ash trees on the south-west. A few similar trees have also been retained on the north-west side, partly for the sake of appearance and partly for shelter, but in addition to these quick-growing Poplars and Maples have been planted to assist in breaking the force of the wind from that direction.

Only a brief review of the experiments already taken in hand can be given here, for they cover a very wide field, as can be judged when it is stated that the last number entered on the books until the present month is 500. Great prominence is accorded to Apples, and one of the most interesting portions of the farm is that devoted to the sixty different experiments with Bramley's Seedling, Cox's Orange Pippin, and Potts' Seedling. These were selected as presenting different habits of growth besides being of good constitution and reliable croppers, and therefore calculated to give some appreciable results under diverse treatment. The method adopted in the arrangement of these trees is planting the varieties in neighbouring plots extending from the higher to the lower portion of the farm, so that there are six trees of each variety in a line across the three plots, each eighteen trees being the subject of one experiment. The trees are all carefully selected, dwarfs on a broad-leaved Paradise stock, and being as nearly equal as possible, it will be interesting to note the behaviour of the respective varieties under precisely similar treatment. The nature of the experiments may be judged from the following list of the subjects especially dealt with and to most of which several experiments are devoted. Treatment of branches, including a comparison of the results from different systems and times for pruning, pinching, or cutting back the shoots and branches. Treatment of roots, in which root-pruning will be performed at different periods, and compared with lifting and other trees not disturbed.

Treatment of surface soil, comprising five experiments dealing with loose and firm soil; the effects of hoeing, hardening the surface, digging close to the roots, and allowing weeds to grow. To manures and their effects twenty experiments are appropriated, the chief chemical manures being compared with farmyard manure and liquids, while in another series the amounts are varied to ascertain which gives the best results, the best times for applying the different manures being also carefully tested in the same way. This section will no doubt give some important results, but much time must necessarily elapse before it will be possible to found any definite opinions upon them.

The methods of planting illustrated include planting high and low, in holes 1 foot deep, and in ground dug 2 spits deep, together with planting in holes with chalk at the bottom. The most

remarkable just now are the three experiments devoted to bad planting, because this dry season has produced results which are most noticeable in contrast with the other plots. In one of these the trees are badly planted, but they have been attended in all other respects, duly cut back, the ground forked, hoed, and kept thoroughly clear.

The next two rows of trees were badly planted but neglected—that is, neither cut back nor attended in hoeing and cleaning—the only difference to be observed being that in one case it is intended to apply manure and in the other none. The ground is a dense mass of weeds, it has hardened and cracked very much, and the trees show the effects in the extremely poor growth made, the small size of the leaves, and the large number of these turning yellow and falling. It is a most striking illustration of what attention will effect, for the trees were all planted exactly alike—namely, in small holes dug with a spade, the soil roughly and heavily trodden in over the roots—and the difference is remarkable, even between the first and two other rows.

The effects of different soils are tested by five experiments, in which the stations were prepared by mixing with the ordinary soil or replacing this by rich compost, gravel, stones, peat, or chalk. Autumn, winter, and spring planting, the removal of flowers, and the behaviour of damaged trees are respectively dealt with in succeeding experiments, all of which may be expected to yield much interest as time goes on. The more important of those enumerated are repeated with dwarf trees of Stirling Castle, and again with standards of Bramley's Seedling, Cox's Orange Pippin, and Lane's Prince Albert in another portion of the farm, so that abundant records will ultimately be available on the various subjects dealt with.

With the object of ascertaining how far the different systems of training Apples may affect their produce or profitableness nearly 300 maiden trees of Bramley's Seedling, Cox's Orange Pippin, and Stirling Castle on a broad-leaved Paradise stock, have been planted to be trained on the various forms of bush, bowl-shaped, or pyramidal trees, espaliers, and cordons. Their respective progress will thus be readily traced from the beginning. Besides these, 120 varieties of Apples have been selected for trial on an equal number of Crab and Paradise stocks, and will be budded or grafted on the farm, so that their progress may be watched from the first stage. Six large plots of ground are devoted to this purpose, and it is interesting to note that many of the weaker Crab stocks suffered during the severe winter, a much smaller proportion of the Paradise stocks have been lost, and the same is observable in another portion of the farm. It is intended to make these plots the subject of experiments in hard and moderate pruning, also as a means of testing insecticides, as a large number of trees of different varieties on the two stocks will be available for the purpose.

Strawberries also come in for a large share of attention, for no less than eighty varieties are grown for comparison, and in the border which is specially devoted to these they are planted in lines of thirteen each, 10 feet apart, to afford space for planting a fresh row each season for five years. By this means the produce of each variety will be tested from plants of five different ages, and the records will show at what period of its life the variety or plant yields the best return. The present season has been a bad one, for in addition to the late planting that was unavoidable in some cases the extreme drought and a severe attack of weevils have been opposed to either large or good crops. Yet some of the Strawberries have yielded satisfactory fruit, and on the occasion of the meeting creditable examples of fifty-six varieties were gathered.

The earliest ripened were Laxton's No. 1 and Crescent Seedling (June 4th) followed by Noble and Scarlet Queen (June 5th), King of the Earlies, Keens' Seedling, and Marguerite (June 6th). Exceptionally large fruits of Sensation and Bothwell Bell have been obtained, 1¼ to 1½ oz. in weight; fine examples

of Noble were also produced, but this variety does not seem to be at home on the heavy soil at Ridgmont. Though the fruits are small Laxton's No. 1 has cropped well, the fruits being firm and of fair flavour when thoroughly ripe. One of the most satisfactory in all points as regards crop, colour of fruit, and especially as to flavour, is Edouard Lefort, a variety sent out from France, which will probably take a place in many gardens when better known. It should be added that in addition to the strictly experimental plots of Strawberries, rows of about eighty plants of each of the varieties are planted in other parts of the farm.

Attention is devoted to the economic side of fruit culture in what are termed the demonstration plots, which consist of half an acre each planted in different methods to suit what may be regarded as the requirements of farmers, market growers, and cottagers. In case of the first named free growing varieties have been selected, and ample space has been allowed in half the plot for cropping between the rows until the land is laid down to grass. In the other half additional rows of dwarf trees and bushes have been introduced. A somewhat similar course has been taken with the market growers' plot, where in one half Strawberries are grown, while in the other Gooseberries and Currants take their place, but a much closer system of planting is adopted in both these with the object of utilising the whole of the ground, and with a view to ultimate thinning when needed. In the cottagers' plot one half is divided equally, fruit being grown on one portion, and vegetables on the other, while in the other half greater space is allowed between the rows, so that vegetables can be grown with the fruit, the same varieties of fruit and a like number of trees or bushes being grown in each quarter acre plot. Throughout these demonstration plots the fruits planted are standard and dwarf Apples, dwarf Pears, Plums, and Damsons, Nuts, Currants and Gooseberries, Raspberries and Strawberries, the Damsons, Nuts, and Raspberries forming the boundaries to the plots. Accurate accounts will be kept of the labour expended and the produce of the respective plantations, so it will be possible to institute a comparison both as to expenses and returns.

Experiments have also been commenced on the different methods of arranging trees in planting, bush Plums being selected for the purpose, and three plots are planted with these—in the square, the rectangular, and the hexagonal (equilateral triangular) systems. Each plot comprises thirty-six trees in three varieties—namely, Monarch, Czar, and Victoria alternately, so arranged that they represent exactly the same number per acre (1210 trees). The plots are surrounded by rows of Early Prolific Plum at the same respective distances, and arranged in the same way; but these are merely intended as protective. In connection with these experiments, it is being endeavoured to obtain some information in regard to the effects of light under the different systems of planting, by shading trees in three ways by means of screens of canvas; but in order to produce an appreciable result, the screens have been placed much closer than other trees would be. How far this will affect the object in view remains to be proved.

Although the whole of the farm is not yet planted, much more of interest is worth attention; for instance, some 3600 feet run of experimental fruit hedges have been planted, comprising Plums, Damsons, Medlars, Quinces, and Filberts. Collections of local varieties of Apples are being tested, including Scotch, Irish, and continental varieties, and a nursery is planted with Crab, Paradise, Pear, Quince, Hawthorn, and Cherry Plum stocks, to be budded or grafted for utilisation on the farm or estate.

Adjoining the nursery a collection of trees and shrubs has been commenced, chiefly representing the more ornamental and distinct forms of *Prunus*, *Pyrus*, and *Crataegus*, but also including representatives of many other genera of the family *Rosaceae*, together with ornamental flowering shrubs and trees of various kinds. This will become both an interesting and beautiful feature, especially as efforts are being made to utilise the brook banks for ornamental

purposes by suitable planting, and the introduction of rustic bridges with small waterfalls. The ornamental is rigidly subordinate to the useful generally, but the brook and its adjuncts afford a very welcome relief to the other portions of the farm.

It only remains to add that the preparation and laying out of the greater part of the land, with the whole of the fruit tree planting, has been carried out under the superintendence of the Manager, Mr. Castle, to the entire satisfaction of the Duke of Bedford and Mr. Spencer Pickering, and it is impossible to speak too highly of the excellent condition and orderly appearance of the grounds.

FRIENDLY FLIES.

THOUGH it is not till the summer is at its height that flies seem to be in full force, there are abundance of them on the wing during June, but we do not notice them out of doors so much amongst the leaves and flowers as when various species take a turn indoors later on and enjoy themselves about our houses and conservatories. Commonly, we look on flies in the light of annoying if not always injurious insects, but there are many deserving of a good word, because they do us service either in the winged or in the preparatory state of grub, and this often passes unnoticed, because it is less conspicuous than the attacks made by other species on buds, flowers or fruit. We talk about the ignorance and superstition of the ancients, but perhaps the worship by some of certain flies as gods was not foolish from their point of view. They regarded the insects as benefactors, whose activity produced a wholesome result, removing or decomposing matter that is hurtful to man, and fitting it to promote vegetable growth. But no doubt there were also flies, or fly deities, which would not have been revered had there been no fear of these particular insects.

Now, there are flies and flies. The name is vague, and for the present we leave the hosts of four-winged species, called ichneumon flies, allied to the bees and wasps that are busied in depositing eggs upon the bodies of caterpillars and other larvæ, also sometimes upon pupæ, by which their development is stopped, and the number of our garden foes is much reduced. Confining our attention to two-winged flies of the Dipterous order, we will notice a few of the species that help us considerably by preying upon various insects, some of which are troublesome, because apt to elude us, or they are endowed with the power of rapid increase. Much too, might be said for the flies whose maggots feed on natural manures, as we have remarked; gardeners of the olden time relied a good deal on their labours in changing crude manure so that it was fit to be applied to plants, but unfortunately some of them have a trick of quitting their old food for a new diet, when they happen to be brought amongst roots.

This is indeed one strong argument in favour of the preference now given to chemical manures, which, of course, insects avoid, and when other kinds are used it is desirable they should not contain fly or beetle life in the larval stage. Again, something must be put to the credit of the fly tribe, because there are flies that are fellow-workers with bees, some butterflies, and sundry other insects, in effecting the fertilisation of flowers amongst various orders. This is done not only by the long-trunked bee-flies, but by some species of small size. Quite a party of such flies will enter the tube of an Arum or Aristolochia, where the hairs imprison them for awhile, and after they have obtained a little honey, with a coating of pollen, the hairs shrivel, affording them an escape, so that they may carry the pollen to the stigmas of another flower.

In some instances, however, the flies simply act by effecting the transference of this fertilising medium from the anthers to the stigmas during their visit, by contact or agitation. Amongst the species that are known to be partially impregnated through these insects, are some *Violas*, *Lythrums*, *Sedums*, *Saxifrages*, and other plants. It is one contrast in fly life that not a few of the flower lovers, during their maggot state, fed upon offensive substances; others of the scavengers, when they appear as flies, are household nuisances or else bloodsuckers. Flies generally have a very good muscular development; we often see instances of it in their power of steadying themselves upon the wing, with heads against the wind, and this is of special service to such flies as are predatory. Species of the same habit in the maggot state also exhibit abundance of strength.

We find insect-eaters occur in a group of flies which might be called the tiny fairies of the order, remarkable for their slender forms, rainbow-tinted wings, and long antennæ. Gnats, most people would take them to be; they are properly the *Cecidomyiæ*. A very injurious species is the "Hessian" fly. Many of the larvæ feed on flowers, fruits and leaves, where they produce little knots

or galls frequently, but some of them are aphid-hunters, seeking for these troublesome insects in their retreats within folded leaves, under bark, or amongst roots. Probably the aspect of the soldier-flies, rather stout-bodied insects, having a spiny thorax, might suggest that they were combative. We see them at flowers, but only seeking their honey. The name seems to have been given because red, orange, or yellow, in varied markings, are displayed upon the black ground colour. There is no doubt about the habits of the strong and hairy flies called the Asilidæ; their appearance suggests their carnivorous nature, and some of them are not at all afraid of combating bees.

A brisk fellow noticeable on sunny days is attired in black, white and yellow; when he visits our flowers it is to seize and carry off caterpillars or other insects: he is *A. craboniformis*. Allied to these are the snipe-flies, or Empidæ, named from their long tongues and of smaller size. The males chiefly subsist on the nectar of flowers, but the females destroy many insects, gripping them round the body, while they drive the beak deeply in to extract the juices. Familiar to gardeners is the dull-coloured *E. tessellata*, having a thorax streaked with black, and long, spiny legs. Many of these flies hunt out the little moths of the Tinea division, parents of those leaf-roller caterpillars which damage and disfigure plants or shrubs, killing thousands of them during the summer, much to our benefit.

Amongst the hawk-flies we have insects useful in the larva state, while a few are injurious from their attacking bulbs. We cannot mistake them for other groups. The head appears almost covered by the eyes, and when they resort to flowers they hover over them as if motionless, but make a dart now and then to the right or left. Having refreshed themselves with honey, those of the genus *Syrphus* deposit eggs in the midst of clustering aphides, frequently selecting the Rose. The grub has a small head, bearing a curious apparatus, by which it spears the aphides one after another rapidly, steadying itself upon the leaf with the aid of its broad tail. Then again the Tachinæ, a division of the flies proper, number about a hundred species, and they busy themselves now in the pursuit of caterpillars. From their eggs are produced grubs which eat into and destroy these insects, also sometimes they infest the larva of beetles and bees.—ENTOMOLOGIST.

THE PROFITABLE EMPLOYMENT OF GLASS STRUCTURES IN WINTER.

[Silver Medal Essay by Mr. PETER WILLIAMS, Oakfield, Nantwich.]

(Concluded from page 538.)

AS is evident, an important consideration in Mushroom culture under glass is, that the cultivator does not depend on the outside temperature, which is often fluctuating, but having heating appliances at command, can keep an even temperature at leisure; therefore a failure in the crop from this direction is impossible. The best Mushrooms I have grown have been in this manner, and I have this last winter grown Mushrooms in boxes 10 inches deep, covered with slates, and placed under a greenhouse stage, of better quality than others grown in beds in a shed; in fact, better could not be desired. Superficial area considered, those grown in boxes in the glass house were far more productive than the others. Thus spaces and places unsuitable for one thing can be made suitable another, *ad infinitum*.

Hitherto no mention has been made as to cropping the raised border over the Mushroom bed, that being reserved for growing what may be termed the "staple industry" of the winter, spring months especially. As the demand for salads is not so great before the end of December, though the demand is annually increasing—salading being so often recommended as a wholesome article of diet, being useful in scorbutic affections and visceral obstructions—a limited supply for that time would perhaps be sufficient. For that purpose the borders named would meet requirements *pro tem*. From the time the seed was sown—i.e., the beginning of October, four crops of Mustard and Cress could be cut, each value £9 6s. The estimation is arrived at thus:—The borders each being 60 feet in length (ends of the house omitted) and 4 feet wide would give 480 square feet, 1 quart of each seed sowing 50 square feet or 5.5 square yards, from which space 20s. value of Mustard and Cress can be cut; therefore the four crops up to January would realise £37 4s. The foregoing is based on a fair test when in the market-growing business, and when commencing to grow this salad for market. I concluded I had "struck ile," and rightly so, for the more I grew the more the demand grew.

Prior to my growing Mustard and Cress to any extent the retailers were obliged to obtain their supply of this salad from large centres by rail. Though there were several other market gardeners in that neighbourhood all were indifferent to this branch of industry beyond sowing a box or two, and there it ended. It must be understood that to be profitable it must, as everything else, be well grown, when there will be a brisk demand for it. In some localities marketing facilities are not so convenient as in others; but on the whole 25 per cent. expenses will be a fair average to meet all cases. I may here assert that expenses, time

of maturity, space occupied, number of crops, there is no produce in a garden indoor or out that will bear comparison with this salading.

Seeds—The best of these should be obtained, otherwise it often comes "patchy," and perhaps not at all, thereby causing disappointment. The average price of good Mustard seed (*Sinapis alba*) is 14s. per bushel; but a substitute for Mustard is much used—viz., Rape (*Brassica rapa*). Care should be taken to obtain the true article, the latter not being as wholesome, though preferred by some on account of its being milder. When grown together the difference is easily perceived, the true Mustard being of a bright, fresh green colour, while the Rape is of a dull green and a downy appearance, it moreover cannot be grown to the size of the true Mustard. The price of Cress (*Lepidium sativum*) is about 17s. per bushel, or an average for both of 15s. 5d.

Culture and Marketing.—Before sowing the ground must be enriched by an application of old Mushroom manure, forked in and the surface made very fine, after which a thorough watering must be given the day previous to sowing, dryness at any time being detrimental to the crop. The exhausted Mushroom beds having been cleared and placed in a heap outside, the ground space will be at liberty by the beginning of January, which will be necessary, the salading season by this time being in full swing, and after such a winter as we have experienced the demand for any green salading will be doubled or trebled. Having on the borders an area of 480 square feet, on the ground an area of 770 square feet, or a total of 1250 square feet, sow one-eighth the space, 136 square feet, with Cress, for which 6 quarts of seed will be ample. I always preferred sowing equal quantities and placing equal quantities in punnets, though some put less Cress than Mustard. After an interval of seven or eight days sow another one-eighth with Mustard seed, at the same time another one-eighth with more Cress, and so on until the whole space, be it one or a dozen houses, is sown. Treated thus it will come in rotation, as a continuous supply must be kept up from this time until the end of the salading season, or rather Mustard and Cress season. After sowing the seed gently press down with the back of a spade, or a board with handle attached may be made for the purpose, after which sprinkle with water, using a very fine rose.

Early in the season, before the sun gained much power, I simply scattered very fine soil over the whole, but I found by experience that the better course was to cover with mats, or, which is better, coarse packing cloths, as they are not so heavy as mats, or sugar bags cut open. Procure some Y-shaped pegs 3 feet in length, and place in the ground in such a manner that thin strips of wood may be rested on them. When a framework has been made in this fashion lay the covering on them, and keep damp by syringing. The covering must be kept on until the crop has attained to a height of 2 inches, when it may be taken off to expose them to the light, and to give them a fresh green colour.

To obtain the best results the crop should be allowed to grow until the seed leaves are fully expanded, and the stems are from 4 to 6 inches in length; but it must be cut before the second leaves appear. In this way the grower obtains double the quantity in bulk from one-half the amount of seed, in addition to which the salad is sweeter and fresher, and free from the manury smell and flavour which it has when grown thicker and in a stuffy atmosphere. For cutting the crop the most serviceable instrument is a hooked knife with blade about 9 inches in length, but bent at right angles from the handle in the same way as a trowel. With this it can be shorn close to the ground, the left hand following above the blade to keep that which is cut together. The punnets or baskets being in readiness may be filled by another person, or one person after a little practice can fill hundreds in a short time.

Should the grower have the advantage of disposing of his goods direct to the retailers many prefer being supplied with it in clean, square baskets or small sieves, in quantities computed at 6d., 9d., or 1s. worth according to the size of basket. This is much the better way, as the buying of punnets is dispensed with, the baskets being returned when fresh supplies of salads are delivered. For conveying the baskets or punnets to market boxes should be prepared previous to being required, the same boxes being found useful for packing leaves of Raspberries during the fruit season, the most convenient size being about 18 by 24 by 24 inches in dimensions. This should be fitted with four shelves or false bottoms, in addition to its own, and made to slide along a slot on each side.

As each layer of punnets or baskets is placed on these shelves a sprinkling with water will be advantageous to keep them in a fresh and marketable condition. In this way sixty punnets can be packed and conveyed without being in the least injured. As soon as the first crop is cut no time should be lost in resowing, and it is here especially that great care is needed; for if the rootlets of the second and succeeding crops come in contact with those of the first crop failure and disappointment is the sure result. In the first place, then, the surface must be removed to the depth of 6 or more inches, throwing it together in a heap outside, and mixed with lime, when it may be again used when the roots are thoroughly decomposed. Before taking any fresh compost in the subsoil must be given a thorough watering.

The Mushroom bed manure being convenient as before directed will now be found of further value, as much as is required being mixed with soil, or (which is better suited for Mustard and Cress) an old refuse heap in which there is a quantity of decayed vegetable matter. This screened and mixed with the manure in the proportion of one-half of each will suit them admirably. This should be placed to the same depth as that taken off and made moderately firm.

Temperature.—An average temperature of 57° should be maintained, giving top ventilation liberally to allow excessive ammonia to escape, as

it otherwise often happens when shut in a close atmosphere it smells rank and soon decomposes. As the sun gains power the temperature may rise to 90° by day with abundance of air, giving them a sprinkling with a fine syringe three times a day, allowing the moisture to escape, however, before closing for the night. It must not be syringed to the extent of laying it on the ground. If it should get dry and need watering spaces must be opened to pour the water in, having for the purpose in the left hand a T square, with the end of which the dense foliage is gently drawn aside, while with the watering pot in the right hand water is given, gently closing the spaces made after watering. No mention has yet been made as to the space under the border, but as Mustard and Cress would not do well underneath, Rhubarb or Seakale or both would do there, the manure after the Mushroom crop having been left would now be useful for forcing these edibles.

For darkening the space underneath mats could be hung from the border above. As the routine of Rhubarb and Seakale growing is well known, it is unnecessary to dwell here on that subject any further than to state that Rhubarb should be lifted carefully without injuring the fibres nor dividing the crowns, then placing them as closely as possible together, working the manure, in which a little soil has been added, well among the roots—keep well watered and syringed.

In preparing for market those most equal in size must be bunched, tying four or more, according to the season, in the bunch; a firm tie at the base and one at the top being all that is needed. In taking Seakale up for forcing the rootlets may be shortened to within an inch of the base of the stem, then planted in the compost about 4 inches apart each way. When about 6 or 8 inches in length, and nicely blanched, it is fit to cut.

Total Estimated Results.—The total estimated results derived from various sources may be summarised as follows:—Computing that eighty dozen bunches of Rhubarb (or the equal value of Seakale) may be got from under the border, at 1s. 6d. per dozen would give £6. For the four crops of Mustard and Cress from 1st January to the end of March, at £25 per crop, would produce £100, added to which is the item for Mustard and Cress from the border from November to January, bringing the total to £137 4s. Deduct for seed, of which 8 bushels would be required, and would cost about £5 6s.

Placing the total Mustard and Cress expenses at 25 per cent. a substantial balance is then left, or a total profit from the Mustard and Cress crop of £103. From "Geraniums," after deducting 30 per cent. expenses, a margin is left of £49. From Mushrooms a total profit of £64 5s., or a grand total of £212 5s. Thus, according to the size of structures used, the foregoing bases may be used in proportion to the structures employed, and will be found to be at least one satisfactory way of solving the problem of "The profitable employment of glass structures in winter."

BEAUTY IN VINE LEAVES.

THE interesting article by "Market Grower" on page 522 of the Journal draws attention to the beauty that often develops in Vine leaves, and more especially in those of Gros Colman. As I happen to know who "Market Grower" is, and have often seen samples of his skill as a Grape grower, and also admired the beauty of the Vine leaves produced at his place, I was the more interested in the article referred to. Barbarossa has generally been looked on as the Vine capable of producing the most beautifully tinted leaves, but Gros Colman as produced by "Market Grower" excels in beauty even the leaves of that variety. As exhibited by "Market Grower" at various autumn shows the leaves of Gros Colman have attracted the attention of many people, and a good trade has been done in the retailing of them to people who were struck with their wonderful beauty.

We have them here in great variety of tint, and they are often much admired, and sought after; but we never have had them as beautiful as those of "Market Grower." Whether it is any peculiar quality in the soil, the treatment given to the Vines, or from whatever cause I cannot say; but one thing is certain, and that is for beauty the Vine leaves produced at "Market Grower's" place are really remarkable. The demand for these leaves is likely to increase, as when properly pressed, sized, and varnished they last for at least two years, and form most beautiful subjects for house decoration.

"Market Grower" is well entitled to give an opinion on modes of Grape culture, as he is a most successful cultivator of the Vine. High finish is always found in his establishment, and Grape-growing can be seen at its best at "Market Grower's" place. Tomatoes are also cultivated with wonderful success, and the crops produced every year are tremendous. "Market Grower" has opinions of his own on most matters, and is not afraid to act up to them. Certainly his opinions on the culture of the Vine and Tomato must be correct, as the success which annually attends his efforts in connection with both is sufficient to prove.

Those who have not seen Gros Colman leaves as exhibited by "Market Grower" can have little idea of the beauty to be found in them. Nowhere else have I ever seen such rich colours and so much variety, and, whatever may be credited with the production of these tints, one thing is certain, and that is the leaves are simply unique. The bloom and general finish of "Market Grower's" Gros Colman are splendid, and testify to high cultural skill, combined, it may be, with some natural advantages of earth, air, and water.—JOHN THOMSON, Clovenfords.



SOBRALIA MACRANTHA.

ALL the species comprised in this genus are strong growing terrestrial Orchids with upright reed-like stems, producing their flowers from the apices. *S. macrantha* is the best known and most popular kind, and should be included in every collection. When newly imported the plants require a strong moist heat in order to get strong growth, without which it is useless to expect them to establish themselves, but after a season or two, and when the plants are thoroughly established, they are better at the cooler end of the Cattleya house.

S. macrantha has very large fleshy roots, and these require ample sustenance and a rough open compost. The pots should be wide rather than deep, and filled about half their depth with drainage. To insure this always being free, and prevent the earthy parts of the compost from swelling downwards, a layer of moss should be placed on this carefully, but thinly. Spread the roots out as much as possible, but carefully avoid snapping them, and fill in with two-thirds of peat fibre to one of good loam, to which has been added a sufficient quantity of potsherds or charcoal to insure porosity and aëration. There is no need to raise the plants above the level of the rim, so no difficulty will be found in fixing the plants if the roots are abundant, if not, a few stakes will be required. After potting the plants may be syringed daily until

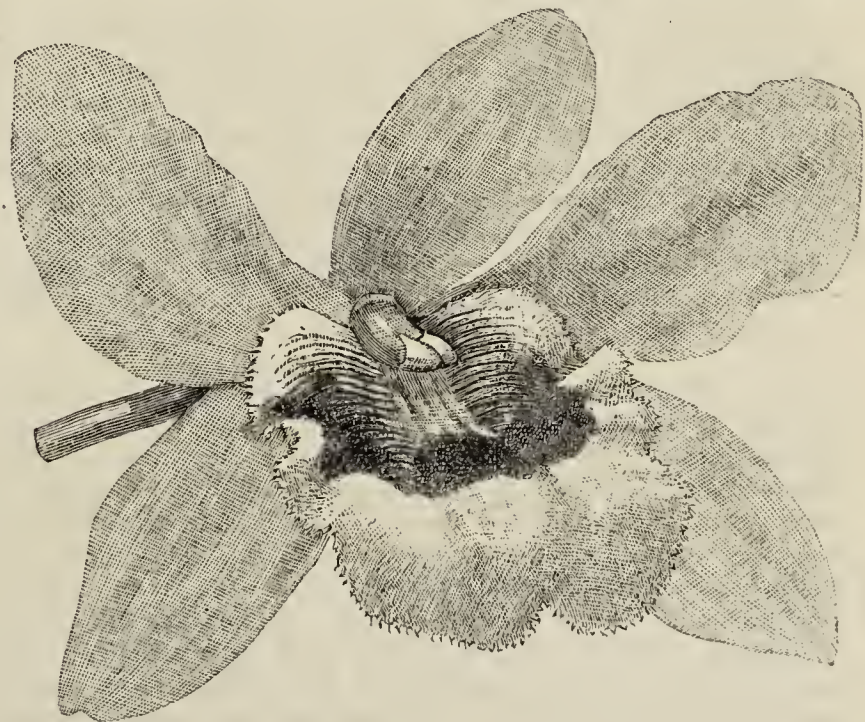


FIG. 99.—*DENDROBIUM ILLUSTRE.* (See page 566.)

new roots are forming, and a surfacing of moss reduces the task of watering at this stage to a minimum. When they have obtained a good hold of the soil a full supply must be given as long as the plants are growing. When this is complete less is needed, but they do not require to be absolutely dried off at any season, or injurious effects are sure to follow.

Old plants that have been flowering several years have often a lot of weak old stems, that, though not absolutely dead, are of no further use. These should be taken out, in order to admit light to the newer growths, and to allow space for their full development. A good plant of this species, when well grown and flowered, makes a fine display, as the blossoms are very large and showy; and although of an evanescent character, the number produced successively on the racemes keeps up the display for a considerable time. The individual flowers are from 5 to 7 inches across, and very fragrant; rosy purple in ground colour, with a distinct yellow throat. *S. macrantha* is an old inhabitant of our Orchid houses, being introduced over half a century ago from Mexico, and there are several varieties of later introduction. *S. m. albila* is an introduction by Messrs. B. S. Williams & Son, and has a light rose lip, and whitish sepals and petals. *S. m. Kienastiana* is a newer and rare variety, with pure white flowers. *S. m. nana* is, as its name implies, a dwarf form of the type of which the names of *S. m. delicata*, *pallida*, and *splendens* are amply descriptive.—H. R. R.



EVENTS OF THE WEEK.—Rose shows will be very numerous during the next week, and on page 563 a list will be found, compiled by Mr. E. Mawley, of the principal exhibitions in the country.

— WEATHER IN LONDON.—Again we have to deplore the almost total absence of rain in the metropolis during the past week. On Monday morning the sky was overcast, and there was promise of a good rain, but only a very slight shower fell, not, in fact, sufficient to lay the dust, since when the sun has shone daily with great power.

— WEATHER IN THE NORTH.—Rain fell towards the middle of last week, and a good deal of thunder occurred; but a great deal more rain is required in this district. The drought is again very severe. Monday was very warm, and Tuesday morning promised a day equally so.—B. D., *S. Perthshire*.

— ALTRINCHAM GARDENERS' SOCIETY.—The Gardens of Dunham Park, Manchester, were visited recently by the members of this Society, and the stately trees, fine masses of Rhododendrons, and bright display of flowers in the pleasure grounds, and the crops of fruit under glass and of vegetables in the open quarters, proved equally attractive to the visitors.

— CALADIUM ARGYRITES.—This dwarf-growing species is perhaps the most useful of all the numerous varieties now in existence as a decorative plant. Not only does it do immense service when growing in pots, but the leaves when cut are much employed by bouquetists and decorators in general. The decided contrast in silver and green of the leaves seem to harmonise with almost any flower. In groups of miscellaneous plants this Caladium is employed most effectively. Many hundreds of tubers or roots are annually lost during the winter through keeping them in too low a temperature. Nothing less than 55° as a minimum is safe.—E. M.

— WILLIAM I. PEAS.—We sowed about 300 pots (3-inch) with William I. and Exonian Peas on February 12th, started them in a vinery, transferred to a cold frame as soon as they were well up, and planted them out in shallow trenches on March 11th. From this sowing we gathered a peck of well filled pods on June 1st, and had it been necessary we could have got a dish some days earlier. Since then we have picked about 4 bushels. The same sorts, sown in an open quarter on March 4th, are now free for picking. I think this will prove that William I. is still able to hold its own with other varieties; whilst as to productiveness with us there are no two opinions about the matter, as dwarf Peas do not do well with us, and have long since been discarded. I may add that Johnson's Wonderful Longpod Broad Bean, sown in boxes on February 13th, and planted out as soon as ready, is now yielding a good crop of Beans.—THOMAS NUTTING.

— ROYAL METEOROLOGICAL SOCIETY.—The last meeting of this Society for the present session was held on Wednesday evening, the 19th inst., at the Surveyors' Institution, Westminster, Mr. R. Inwards, F.R.A.S., President, in the chair. Mr. R. H. Curtis, F.R.Met.Soc., read a paper on the "Hourly Variation of Sunshine at Seven Stations in the British Isles," which was based on the records for the ten years 1881-90. Falmouth is decidedly the most sunny station of the seven, having a daily average amount of sunshine of 4½ hours. This amount is half an hour more than that recorded at Valencia, and three-quarters of an hour more than at Kew. Of the other four stations, Aberdeen, the most northern, but at the same time a coast station, with 3·64 hours, has more than either Stonyhurst or Armagh, both inland stations; whilst Glasgow, with only 3 hours, or about a quarter of its possible amount, has the smallest record of the seven, a result to some extent due to the nearness of the Observatory to the large manufacturing works with which the City of Glasgow abounds. The most prominent feature brought out at all the stations is the rapid increase in the mean hourly amount of sunshine recorded during the first few hours following sunrise, and the even more rapid falling-off again just before sunset. Mr. H. Harries, F.R.Met.Soc., also read a paper on the "Frequency, Size, and Distribution of Hail at Sea."

— THE paper on nitrogenous manures and their effect was read by Mr. J. Guy, not Mr. J. Gay, as given on page 544.

— WE learn with pleasure that Mr. P. C. M. VEITCH, of the firm of ROBERT VEITCH & SON, Royal Nurseries, Exeter, was recently made a Magistrate and Justice of the Peace for the city of Exeter.

— AUSTRALIAN FRUIT.—The Peninsular and Oriental Company's steamer "Massalia" arrived in London recently with the following consignments of Apples:—From Hobart, 16,515 cases, 106 small cases, and 100 half cases; from Melbourne, 208 cases; and from Adelaide, 146 cases, or a total of 17,244 cases large and small.

— CARTER'S UNIVERSAL BROCCOLI.—I noted some time ago that this was the only hearting Broccoli that had come safely out of the winter ordeal. It is not only the one sort that did not succumb, but is also a valuable late variety, and has overlapped early Cauliflower by a few weeks. Of the latter I may say that Veitch's Forcing has been fine, and has not only given a good central head, but most plants have also produced three or four smaller side heads.—R. P. BROTHERSTON.

— WALKS IN BELGIUM AND THE ARDENNES.—To those who anticipate a holiday in Belgium the little book now before us should prove of the utmost value. The notes are of the most interesting, and at the same time elucidatory character, the illustrations being another good feature. To this edition further utility has been added by the excellent maps, and also a chapter on the French Ardennes, a delightful district replete with modern interest and historical romance. As the book is published at 6d. it should be in everyone's hands, and may be procured from 30, Fleet Street, London. To tourists the name of Mr. Percy Lindley as editor will be a sufficient criterion of its worth.

— THE EFFECTS OF THE FROST.—I am forwarding you a few tops of Potato and Runner Bean growths, which were severely damaged by frost on the morning of Saturday, the 15th inst. Is not such an occurrence so late in this month almost if not quite unprecedented? The frost was not general, I believe, even in this neighbourhood. The blackened growths I send were taken from an allotment a quarter of a mile from here, but nothing was injured in my garden. With the days intensely hot during the past week or two the nights have been very cold. At four o'clock this morning, with the sun shining brightly, the temperature was 38°. Rain is badly wanted for all crops, and unless we are favoured with some very soon many things will be partial if not total failures.—CHARLES LOCK, *Mangotsfield, near Bristol*. [It is very unusual for Potato and Runner Bean growths to be blackened and cut off by frost, as those you sent had been, in a serious manner at the middle of June. We have known similar cases as late as the 6th of June, and in one instance on the 13th of that month, but in no case so badly as those shown in your specimen. The extreme drought and consequent evaporation, with condensation during the night, was, no doubt, the cause of the frost's occurrence.]

— A REMARKABLY DRY SEASON IN IRELAND—A PECULIARLY FINE ROSE.—There has been a comparatively small rainfall in Ireland for upwards of two months. A shower now and then merely wets the surface. The soil in my garden I find is dry fully 12 inches, and except plants and flowers are both mulched and watered they show the effects; some of these are unusual and worthy of note. As remarked in a former number of the Journal there is almost an entire absence of slugs and snails, so much so that you rarely notice a Strawberry either eaten or crawled over. There is not a trace of their customary ravages on Lettuce, Marigolds, Dahlias, or such like succulent food. I am not sure that the heavy snowfall and cold of February has not something to do with this. Potatoes, while very healthy and little likely to be affected by blight, owing to the stiff hard leathery ripeness of the foliage, are smaller than usual. Flowers dependent on surface moisture or an imperfect supply of water, will not fill up properly; while others, as Pyrethrums, Pæonies, and all the early flowering perennials, had a very short season's bloom. The outdoor fruit prospect may be safely predicted apart from this season's supply; next year's crop will be unusually prolific, so far as it is dependent on well ripened wood. Never have I seen finer Roses, even Maréchal Niel and William Allen Richardson have been blooming profusely for six weeks in the open air, and now Ethel Brownlow, Kaiserin Victoria, and Mrs. Sharman-Crawford continue the glorious tale. One other Rose that no collection should be without, is the one exceeding all others, the Marchioness of Downshire—fine white satin rose, shaded pink, with petals of great substance and grand foliage.—W. J. MURPHY, *Clonmel*.

— GARDENING APPOINTMENT. — We are informed that Mr. W. H. Godden has been appointed head gardener to F. W. Buxton, Esq., Pishiobury, Harlow.

— ARBOUR DAY IN THE UNITED STATES. — A day has been fixed on annually for the planting of trees by a great number of the States of the American Union. The law which has established Arbour Day in the State of New York dates only from 1888, and in three years it has planted on a fixed day more than 25,000 trees.

— LONDON PANSY AND VIOLET SOCIETY. — A meeting of the members of this Society took place on the 17th inst., Dr. Shackleton of Sydenham occupying the chair. A large number of new members were elected, and final arrangements made for the annual show of the Society, which will take place at the Crystal Palace on Saturday, July 6th.

— FLOWERS FOR THE POOR. — In drawing attention to the pleasure that may be given by the distribution of a few flowers among the London poor, Lord Monkswell asks us to remind readers who have gardens that they can all render some help in this good work. Addresses to which flowers may be sent direct will be supplied on application to the Hon. Sec. of the Flower Distribution Branch, Kyrle Society, 49, Manchester Street, W.

— ROYAL SHOW AT DARLINGTON. — Horticulturists were represented at the Darlington show in fair numbers and with handsome exhibits. Amongst the most prominent were the stands of Messrs. Carter & Co., High Holborn, London; Sutton & Sons, Reading; E. Webb & Sons, Stourbridge; Dicksons (Ltd.), Chester; Little and Ballantyne, Carlisle; W. Fell & Co., Hexham; Harrison & Sons, Leicester; and the Agricultural and Horticultural Association.

— THE NURSERYMEN, MARKET GARDENERS', AND GENERAL HAILSTORM INSURANCE CORPORATION, LIMITED. — The statutory general meeting of this Corporation was held at Simpsons' (Limited), Strand, on Friday, 21st June, 1895. The Chairman, Mr. Harry J. Veitch, reported that the shares had been applied for freely, thus providing perfect security for policy holders. Though established only four months, 100 policies had been issued on 6,720,832 square feet of glass, valued at £80,542 2s. 8d., and producing £415 11s. 8d. in premiums. This amount would be considerably augmented by the midsummer and Michaelmas business. No claims had yet been received. The capital had been invested in Government Stock. Twenty-six agents had already been appointed in the United Kingdom. The Corporation was being worked with economy, and was making good progress. The Directors would take no remuneration in any year when less than 5 per cent. on the subscribed capital was made, and then only such sum as the shareholders in general meeting voted to them. From the tone of the meeting the report was considered very satisfactory. Messrs. Harry J. Veitch, James Sweet, and James Webber were appointed Trustees, and the meeting closed with a vote of thanks to the Chairman.

— WOKING HORTICULTURAL SOCIETY. — This excellent and very courageous Society ventures to hold monthly meetings, and have lectures on set subjects all the year round, let the weather be ever so hot or the evenings ever so fine. Just so was it on Thursday evening of last week, when the usual meeting for June was held in a large room adjoining the Railway Hotel. There was found quite a miniature flower show, Messrs. G. Jackman & Sons setting up a pretty collection of hardy border flowers, including many good Pinks, garden Roses in bunches, and some excellent plants of Streptocarpus. From various amateurs and gardeners came Violas in sprays, Pansies, Gloxinias, and many dishes of capital fruit; cottagers also showed largely of both hardy fruit and vegetables. Some small prizes and certificates are awarded at these meetings, the Judges being at them publicly elected, and these awards seem to encourage quite a lively competition. In the absence of the President (Mr. Orlando Law), the Treasurer (Mr. Taylor) presided, the lecture being given by Mr. A. Dean, representing the Surrey County Council, whose theme was "Spring and Summer Bedding Plants," chief stress being laid on the former because all hardy, and also because the time is both now and approaching when preparations for their propagation should be made. The lecturer specially advocated the use of the very early bloomers, such as Primroses, Polyanthus, Daisies, Pansies, Violas, Aubrietias, Anemones, and similar plants, as being ready to clear off in ample time for the summer bedding. The changing forms of bedding as now seen in parks and gardens were referred to, and the varieties of plants mostly employed. A very cordial vote of thanks to the lecturer was awarded at the close.



ROSE SHOW FIXTURES FOR 1895.

- June 28th (Friday).—Exeter.
 „ 29th (Saturday).—Windsor.
 July 2nd (Tuesday).—Diss, Maidstone, and Sutton.
 „ 3rd (Wednesday).—Brockham, Croydon, Ealing, Farningham, Lee,† and Sittingbourne
 „ 4th (Thursday).—Eltham and Norwich.
 „ 6th (Saturday).—Crystal Palace (N.R.S.).
 „ 9th (Tuesday).—Ipswich, Westminster (R.H.S.), and Wolverhampton.*
 „ 10th (Wednesday).—Chelmsford, Farnham, Hitchin, and Redhill (Reigate).
 „ 11th (Thursday).—Bath, Great Malvern (Hereford Rose Society), Helensburgh, Woodbridge, and Worksop.
 „ 17th (Wednesday).—Derby (N.R.S.).
 „ 18th (Thursday).—Canterbury (Kent Hospital Fête) and Halifax.
 „ 20th (Saturday).—Manchester.
 „ 23rd (Tuesday).—Tibshelf.
 „ 24th (Wednesday).—Chesterfield and Newcastle-on-Tyne.*
 „ 25th (Thursday).—Trentham.
 Aug. 3rd (Saturday) and 5th.—Liverpool.†

* A show lasting three days. † A show lasting two days.

—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

NEW ROSES.

IN our last issue (page 547) we made reference to two new Roses of which blooms had been sent to us by Messrs. W. Paul & Son, Waltham Cross. Since then we have discovered another excellent point about them that should certainly be placed on record, and that is their superb lasting qualities. After having been in water for six days the specimens of Queen Mab were as fresh in colour and fragrant as when first received, while those of the Sylph were just commencing to droop. For Roses this is an extraordinary space of time to last in the best condition, and should assist materially in placing both in the highest positions. In examining at more leisure the colour of the former we think deep salmon approaching to coral will be a better description. The colour of the Sylph may perhaps be more simply stated as a deep blush pink.

MILDEW.

AS a rule Tea Roses do not suffer so much from this pest or at such an early period of the year as H.P.'s and other Roses, but "exceptions prove the rule," and this year I had mildew among my Teas in May. It was to be accounted for, I think, as a simple case of infection, due to a little of that carelessness which is always to be found, we are told, in the best regulated families.

I believe my remedy to be the best, but it is not practicable when the mischief is widespread, as it takes some time. I hold a tin of sulphur in my left hand, and taking a small pinch in my right between finger and thumb, just rub each leaf at the same time gently on both sides. It does not take very long with a little practice if there are not many curled and whitened leaves to be seen. My theory is that the mycelium is broken and disturbed, and the sulphur applied to the interior—to "the raw"—so to speak, of the pest, at the same time; and in practice I find it more efficacious than anything which does not involve rubbing.—W. R. RAILLEM.

COLCHESTER ROSE SHOW.—JUNE 20TH.

THE first show of the restored Colchester Rose and Horticultural Society was held on June 20th in the grounds of C. E. Egerton-Green, Esq., the Mayor. Mr. O. G. Orpen being one of the Hon. Secretaries, and an energetic worker for the Society, it is not surprising that the schedule was drawn out with the care which characterises that gentleman's exhibits, and that Roses and decorations formed the principal features in the prize list. There were not a few who prophesied disaster, at all events in amateur entries, when such an unusually early date was decided on; but good fortune in this respect befriended those responsible for the choosing of the day, and the early season brought a larger muster of exhibitors from a distance than the prophets of evil anticipated. The weather was fine, with the exception of a sharp shower for a quarter of an hour about eleven o'clock, which was not enough to do any harm or (as some muttered) any good. Roses were well shown by the trade growers, but there was a great lack of quality and substance in the H.P.'s shown by amateurs, though the Teas were good.

In the class, for thirty-six Roses, open to all, the first prize was won by Mr. B. R. Cant with a good even stand in quite the old style. Among his best blooms were Mrs. J. Laing, Mrs. Sharman Crawford, and La Fraicheur. Mr. Frank Cant was second, winning the Colchester Rose medal for the best Rose in the open classes with a superb bloom of La Fraicheur. This is truly a very beautiful variety, of dwarf growth, very early, and a bad one to carry, lasting but a short time;

but in shape, colour, and size it is quite first-class. There was a good Souvenir d'Elise in the same stand, and a huge Her Majesty at the top corner, quite twice the size of any other bloom in the row. Messrs. W. D. Prior & Son were not a bad third, Dupuy Jamain and S. M. Rodocanachi being among their best.

In class 2, for twelve Teas, open, Messrs. Prior were a good first, their box being very well set up, bright, clean, and effective; Mr. B. R. Cant was second, there being no exceptional blooms in these stands. Mr. Frank Cant was third with smaller flowers, Ethel Brownlow and Corinna being neat and good.

Class 3, open, was a novelty; twelve bunches, not more than seven trusses to a bunch, to be arranged in a certain space in vases or bottles. Tall, plain brown vases, of a very useful nature, were employed by all. The first prize was won by Messrs. Prior, who had relied mainly on Teas, which are bound to beat H.P.'s for decorative qualities; anything besides H.P.'s, H.T.'s, Teas or Noisettes, were not allowed by the schedule. The judges had much difficulty in deciding between the two remaining exhibits, eventually giving the second place to Mr. Frank Cant's group, which was the lighter of the two, and contained an effective bunch of the striped Rainbow, while Mr. Benjamin Cant's collection, which had the finest hlooms, had to take third place.

In class 4, twenty-four Roses (amateurs), the first prize was taken by Mr. J. G. Fowler of Woodford; the second by Mr. R. E. West of Reigate; and the third by Rev. A. Foster-Melliar. A poor class.

In class 5, twelve Teas, Rev. A. Foster-Melliar was first; Mr. Orpen second; and Mr. J. C. Tasker third. There was nothing particularly noteworthy here, and it was sad to see Mr. Berners and Mr. Page Roberts present without any Teas to show. The next six classes were for small growers and local residents, and these were fairly filled, Mr. Landon of Brentwood showing six fine Teas.

The principal interest centred round class 12, twelve Roses, open to all amateurs, for a cup given by the Mayor. This was won by Rev. J. H. Pemberton, who alone of the amateurs present seemed to have H.P.'s of any size or quality, and these were not up to his usual form, his Horace Vernet, which gained the Colchester medal as best amateur H.P., being not a Rose of exceptional merit. Mr. Orpen was second with a very neat box, Catherine Mermet, Niphotos, and The Bride being good flowers. The latter bloom gained the medal as best Tea. Mr. Foster-Melliar was third, having also here his three best Teas, Maréchal Niel (which had a long tussle for the medal), Innocente Pirola, and Princess of Wales. Four other boxes were shown.

For four trebles Mr. J. G. Fowler was first; Mr. Foster-Melliar, whose varieties were unfortunately nearly all of one colour, second; and Mr. Orpen third. For six Maréchal Niels Mr. Arthur Cant was first; and Mr. Mawley, of Berkhamsted, second. For six Roses of any sort Mr. Page Roberts was first with Gabriel Luizet; Mr. H. P. Landon second with Souvenir de S. A. Prince; and Miss Penrice, of Norwich, third with La France. There were no entries for a class of garden Roses.

The scribe had literally no time to look into the tent devoted to decorations, for, his Rose task finished, he was simply held fast by a vase of *Calochortus venustus* in variety, exhibited by Messrs. R. Wallace and Co. of Colchester, and was only dragged from a minute examination of these, surely among the most beautiful of flowers on God's earth, by friends who assured him that the brake was just going off to luncheon without him. This very desirable event to exhibitors who have breakfasted very early was most kindly provided by Mr. Frank Cant in a tent adjoining his house and Rose grounds, to a large number of what might really be called "leading horticulturists" from all parts of the country. The trophy prettily filled with Rose Laurette Messimy graced the centre of the table, and the very posts were adorned with climbing Roses in full flower.

At Mr. Mawley's invitation the guests drank to the health of Mr. and Mrs. Frank Cant, and then adjourned to the Rose grounds, a goodly company of critics, who were all pleased to see a much fuller crop of maiden standard Teas than they expected. A stand was made round six plants of Mrs. W. J. Grant from America just planted out, and much wonder was expressed as to how they came to be sent out in a dormant state at this time of year. Some laughter, and I think also some applause, was heard when a tall gentleman was observed bending himself almost double to scribble energetically on the name label with his pencil. Soon after this incident the company dispersed. Some were very anxious to see Mr. B. R. Cant, who was said, to the great regret of all, to be unwell, but there was not time to see him, much less his Roses. Messrs. Prior's ground being much nearer the station, a few invaded them for a very short time, and took away by train an impression that their Rose plants looked very promising, and that their Strawberries, when eaten by handfuls, were very good too.—W. R. RAILLEM.

FIGHTING INSECT PESTS.

IN the article under the above heading, page 534, especial stress is laid on that insidious pest, red spider. It is, indeed, most troublesome when it has obtained a firm footing on the foliage of any plant, and it is perhaps more difficult to deal with when on the leaves of Vines bearing a crop of large bunches that were at one time looked on as likely prizetakers at some exhibition or other.

I cannot agree with "Pomona," however, that washing the leaves with soapy water is the best remedy for the destruction of this insect. I have in years past spent many hours sponging the leaves in the hope of ridding the Vines of this pest, but after carefully using many mixtures,

both original and well known, very little real good was done. I found to my sorrow several times that some of my best bunches had been rubbed, and were consequently minus what all good judges like to see—bloom.

I never attempt to sponge Vine leaves nowadays to rid them of red spider, but apply a much more simple remedy. I have found dry sulphur scattered over and underneath the affected leaves so efficacious that nothing more was wanted. The actual seat of the enemy must be found and thoroughly covered with sulphur. An ordinary hand distributor I find the best to apply the sulphur with, and I like brown sulphur much the better; it is quite as strong and not so glaring in appearance as the ordinary sort. I do not care for the plan of painting the hot-water pipes with sulphur with the notion that the fumes will destroy the pests. When the pipes are extra heated during the time the Vines are in bloom the fumes from the remaining sulphur, even after that lapse of time, have spoilt many bunches by destroying the tender skin of the berries.

Attending a lecture a week since the same subject came up during discussion. A person in the audience promptly gave a recipe for killing red spider on Vines, which was this:—"During the afternoon thoroughly douse the Vines and vinery with water, not just sprinkle them only, but a thorough drenching; then close the house, allowing the heat in the vinery with sun to rise to 140°." He assured us a single red spider could not possibly live!—E. M.

IRIS ASIATICA.

IRISES have always been popular, and at the present time they are accorded more favour than has ever been the case previously. Considering this, it is no matter for surprise that the handsome new variety as that depicted in the woodcut (fig. 100) should have attracted such an amount of attention when staged by R. Wallace & Co., Colchester, at the Drill Hall on the 11th inst. The habit is robust, and the plants are very floriferous. The standards are of stout texture and bright blue colour, while the falls are of rich violet blue with golden veins. An award of merit was deservedly accorded by the Floral Committee of the Royal Horticultural Society.

ROYAL HORTICULTURAL SOCIETY.

JUNE 25TH.

WITH such brilliant weather it is perhaps needless for us to say that at the Drill Hall on the above date there was a glorious display of flowers. This was more especially the case in the hardy flower section, which was extremely diversified. The Orchid exhibits were generally of excellent quality, but not large in numbers. Melons and vegetables formed the major portion of the produce before the Fruit Committee.

FRUIT COMMITTEE.—Present: Dr. R. Hogg (in the chair); with the Rev. W. Wilks, and Messrs. G. W. Cummins, A. Young, A. H. Pearson, J. A. Laing, C. Herrin, G. Wythes, F. Q. Lane, G. Norman, R. Fyfe, and A. Dean.

On this occasion the members of the Fruit Committee had more before them than has been the case at recent meetings. Mr. Thomas Coomber, gardener to Lord Llangattock, The Hendre Gardens, Monmouth, sent a dozen creditable Pines and a large Melon (silver Banksian medal). Messrs. Rivers & Son, Sawbridgeworth, staged samples of "Early Rivers" Nectarine, and G. F. Wilson, Esq., Weybridge, sent a small basket of Strawberries, "Laxton's Latest of All." Mr. Norman, gardener to the Marquis of Salisbury, Hatfield, sent a dozen fine fruits of Melon Hatfield Scarlet Flesh.

Mr. A. Bishop, gardener to R. Burrell, Esq., Westby Hall, Bury St. Edmunds, staged a fruit of Melon "Bishop's Favourite" (award of merit). Mr. G. A. Bishop, Wightwick Manor, Wolverhampton, sent a large fruit of "Wightwick Manor Favourite." Mr. B. Ashton, gardener to Lord Howard, Glossop Hall, staged a fruit of Melon Baron Howard. Mr. E. Johnson, gardener to — Gilliet, Esq., staged Melon "Johnson's Seedling." Mr. Owen Thomas, The Royal Gardens, Frogmore, sent fruits of Melon The Duchess, and Cucumber "Frogmore Gem." Mr. Charles Brooks, gardener to H. A. Simmonds, Esq., Andover, Hants, staged fruits of Red Rice Perfection.

From the Society's Gardens at Chiswick came Strawberries of varieties Princess Royale, Acquisition, Leader, Bothwell Bank, and others. Mr. R. Gilbert, gardener to the Marquis of Exeter, sent large fruits of Strawberry "Royal Sovereign." Messrs. Laxton Bros., Bedford, staged a grand collection of Strawberries comprising fifty varieties. Amongst others were fine samples of Laxton's Monarch, Laxton's Royal Sovereign, Waterloo, and Laxton's Sensation. Considering the extreme drought the samples were in every way creditable. Mr. S. Mortimer, Rowledge, sent fruits of New Melon Eclipse, and samples of Cucumber Marvel. Mr. H. W. Ward, gardener to the Earl of Radnor, staged fruits of Melon The Earl's Favourite, and also a collection of Peas.

Mr. G. Wythes, gardener to Earl Percy, Syon House, sent fruits of Melon "The Gem," and good examples of Veitch's "Early Forcing Cauliflower," Peas Daisy, Stratagem, and Sensation. Mr. G. W. Cummins, gardener to A. H. Snee, Esq., Wallington, staged good samples of Runner Bean "Ne Plus Ultra." Messrs. J. Veitch & Sons, Chelsea, staged a splendid collection of Spring Cabbages in variety, and also excellent dishes of Peas of many early varieties.

Mr. J. Corbett, gardener to the Rev. The Marquis of Normanby,

Mulgreave Castle, sent fine examples of Tomato "Excelsior." Mr. R. Filkins, gardener to Miss Alexander, Chislehurst, staged Potatoes Queen of the Earlies and Early Laxton for comparison. Messrs. Jas. Carter, High Holborn, sent samples of "Long Standing" and "The Carter" for comparison. The same firm also sent fine plants in pots of Tomato Duke of York, which were thickly covered with excellent fruit.

— FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); with Messrs. H. B. May, H. Herbst, R. Dean, G. Stevens, H. Selge Leonard, J. D. Pawle, G. Gordon, J. T. Bennett-Poë, J. W. Barr,

Messrs. James Veitch & Sons, Chelsea, were well represented in a fine exhibit of hardy flowers, in which Delphiniums were a feature. Amongst others were noticed True Blue, Castro, George Taylor, Britannia, Lord Balfour, Masterpiece, Lord Brassey, and Diomedes. Amongst other flowers were Phloxes Mrs. J. Ross, Forward, A. McKinnon, and Mrs. Gibson Black, Aquilegia chrysantha, Chrysanthemum maximum, Erigeron speciosus, Heuchera sanguinea, Centaurea montana rosea, Spiraea filipendula, Campanula macrantha, and Veronica latifolia (silver-gilt Flora medal). From the same firm came an excellent exhibit of Roses, consisting of cut blooms of Marchioness of Dufferin,



FIG. 100.—IRIS ASIATICA.

J. Walker, H. J. Jones, C. Blick, G. Paul, C. E. Shea, J. Laing, C. T. Drury, and H. Cannell.

Messrs. Cutbush & Son, Highgate, exhibited a fine bank of Malmaison Carnations in pots, many of the blooms being exceptionally large (silver Banksian medal). From Mr. T. S. Ware, Tottenham, came a large and varied collection of hardy flowers. The exhibit was arranged with taste, and consisted of Delphiniums in variety, Spiraea astilboides, Lilium colchicum, Inula glandulosa, Alstroemeria chilensis, Aquilegia chrysantha, Lilium Dalhamsoni, Erigeron speciosus grandiflorum, Campanula cordata, with Irises, Papavers, and other flowers (silver Flora medal).

Merveille de Lyon, A. K. Williams, Catherine Mermet, Duke of Edinburgh, Viscountess Folkestone, Madame Cusin, Ulrich Brunner, La France, Marie Van Houtte, and others.

Messrs. R. Wallace & Co., Colchester, staged hardy flowers, which included Liliums, Irises, and a fine collection of Calochortus, of varieties venustus oculatus, venustus pictus, pulchellus, venustus citrinus, venustus vesta alba, venustus roseus, and others (silver Banksian medal). From Messrs. Geo. Jackman & Son, Woking, came a varied collection of cut flowers, consisting of several good stands of Roses, spikes of Delphiniums, fine flowers of Iris pyrenaica, with Pinks Ernest Ladhams and Her Majesty, Potentilla Golden Cup, Phlox Mrs. Baxter,

Coreopsis grandiflora, and others, the whole forming a pleasing effect (silver Banksian medal). Messrs. Paul & Son, Cheshunt, sent a group of single and other Roses of varieties *Perle d'Or*, *Perpetual White*, *Copper Austrian Bride*, *Maiden's Blush*, *Rugosa alba*, *Janet's Pride*, *Paul's Carmine Pillar*, *Andersoni Celestial*, with flowers of Hybrid *Perpetuals Bacchus* and *Alan Cheales*, and blooms of *Pæonia Madame de Galhan* (bronze Banksian medal). A superb collection of Carnation blooms was staged by Mr. C. Blick, gardener to M. R. Smith, Esq., Hayes, Kent; principal in the exhibit were *Lady Ridley*, *George Cruikshank*, *Zoë*, *Cowslip*, *Princess May*, *Corunna*, *Hayes Scarlet*, and *Sir Evelyn Wood*.

From Messrs. J. Cheal & Sons, Crawley, came a fine exhibit of hardy flowers and Violas, the latter being staged in great variety. Mr. M. Pritchard, Christchurch, staged a fine group of hardy flowers, consisting of *Gaillardias*, *Spiræas*, and *Delphiniums* in variety, with *Potentilla California*, *Dianthus cruentus*, *Papaver nudicaule*, *Orchis foliosa*, *Achillea mongolica*, *Cephalaria alpina*, and many others (bronze Banksian medal). Pots of dwarf Sweet Pea *Cupid* were staged by Mr. Burpee, Philadelphia.

Mr. G. A. Farini, Forest Hill, sent a collection of *Begonia* flowers, many of which were very large. From Mr. J. Prewett, Swiss Nurseries, Hammersmith, came *Gloxinia* blooms of several delicate tints of colour.

Mr. G. B. Baskett, gardener to Lord Penzance, staged boxes of seedling Roses, both single and double and of several tints in colour. From Messrs. T. Cripps & Son, Tunbridge Wells, came plants *Hypericum Moserianum tricolor* and *Philadelphus Boule d'Argent*. Messrs. F. Sander & Co., St. Albans, staged plants of *Dipladenia atro-purpurea* and *Echinocactus aureus*. A small mixed collection of plants came from Messrs. John Laing & Sons, Forest Hill, consisting of *Begonias* J. T. Bennett Poë, Mrs. H. B. May, *Lady Esther Smith*, and *Prince Adolphus of Teck*, together with *Gloxinias* and other plants. Mr. W. Taylor, Osborn Nursery, Hampton, sent a collection of new Rose *Robin Lyth*.

From Messrs. Dobbie & Co., Rothesay, came an excellent group of Sweet Peas, Pansies, and Violas in great variety. The latter were represented by many of the best kinds, and the former by *Princess May*, *Firefly*, *Duke of York*, *Empress of India*, *Monarch*, *Orange Prince*, *Lady Beaconsfield*, Mrs. J. Chamberlain, and many others. Mr. T. Mann, gardener to C. F. Thompson, Esq., Penhill, Cardiff, sent a small but varied collection of *Delphinium* spikes (silver Banksian medal).

Messrs. Barr & Son, Covent Garden, staged a large collection of *Pæonies* and other hardy flowers, consisting chiefly of *Phloxes* *Charles Downie* and *Snowdon*, *Irises aurea* and *ochroleuca*, *Gaillardias grandiflora hybrida*, *Pink Her Majesty*, and others (silver Banksian medal). Messrs. H. Cannell & Sons, Swanley, Kent, exhibited a large and interesting group of Cacti, plants of *Zonal Pelargonium* double *Henry Jacoby*, *Gloxinias*, *Cannas*, and fruits of new *Strawberry Royal Sovereign*. Amongst the former were many novelties in the shape of *Agaves*, *Euphorbias*, *Echinocactuses*, *Sempervivums*, *Mammillarias*, *Echeverias*, *Opuntias*, and others (silver Flora medal). From the Royal Botanic Gardens, Glasnevin, came flowers of *Fremontia californica*; and from Mr. Anthony Waterer, Woking, specimens of *Philadelphus Lemoinei*. Mr. R. Dean, Ealing, sent spikes of *Dyson's Giant Crimson Ten-week Stock*.

ORCHID COMMITTEE.—Present: S. Courtauld, Esq. (in the chair); with Messrs. J. O'Brien, De B. Crawshay, H. M. Pollett, F. Hardy, E. Ashworth, T. Statter, J. T. Gabriel, H. Ballantine, H. J. Chapman, E. Hill, W. Cobb, J. Douglas, and T. B. Heywood.

The group of Orchids arranged by Messrs. J. Veitch & Sons, Chelsea, was very diversified and of much interest. Many very handsome kinds were staged, the flowers being remarkable for brilliant colouration, and the plants for their excellent health. Particularly prominent were *Cattleya Mendeli* in variety, *C. Mossiæ*, *C. Warscewiczii*, *Lælio-Cattleya Arnoldiana*, *L. C. Canhamiana alba*, *Thunia Veitchiana*, *Cœlogyne Dayana*, *Dendrobium illustre* (a hybrid described below, which was accorded a first-class certificate), *D. Deari*, *Odontoglossums vexillarium*, *cordatum*, *Pescatorei*, *Oncidium pulvinatum*, *O. phymatochilum*, *O. macranthum*, *Epidendrum vitellinum majus*, *Disa Veitchi*, *Cypripediums* in variety, and numerous others (silver Flora medal).

A few beautiful Orchids were shown by Messrs. Hugh Low & Co., Clapton, and comprised *Cypripediums* *Gertrude Hollington*, *C. Masoni*, a hybrid between *C. Stonei* and *Spicerianum*, forms of *Odontoglossum crispum*, *Cœlogyne pandurata*, and others (silver Banksian medal). *Odontoglossum crispum*, *Epidendrum vitellinum majus*, *Cypripedium Elliottianum*, *Lælio-Cattleya eximea* and *Lælia tenebrosa* *Walton Grange* var. were conspicuous in the small exhibit of Orchids staged by J. Gurney Fowler, Esq., Glebelands, South Woodford (silver Banksian medal).

Orchids were also exhibited in good variety by Mr. R. Aldous, gardener to H. T. Pitt, Esq., Stamford Hill. *Oncidium phymatochilum*, *Lælia tenebrosa*, *Cypripediums* and *Odontoglossums* in variety, and a few others (silver Banksian medal). From A. J. Hollington, Esq., Enfield, came *Cypripedium Millmani*, a seedling from *C. Lawrenceanum* and *C. lævigatum*, and also *C. Aylingi*. Mr. T. Stafford, gardener to Fred Hardy Esq., Ashton-on-Mersey, arranged the brightest collection in the show. *Lælia grandis tenebrosa* (see below), *Cypripediums*, and several handsome *Cattleya* composed this stand (silver Flora medal). A plant of *Odontoglossum Alexandræ Niobe* was shown by Messrs. W. Cutbush & Sons, Highgate; and Messrs. Charlesworth & Co., Heaton, Bradford, showed *Cattleya Mendeli*, *Charlesworth's* variety. *Orchis latifolia*, *Glasnevin* variety, was sent by Mr. F. W. Moore, Botanic Gardens, Glasnevin.

De Barri Crawshay, Esq., Rosefield, Sevenoaks, showed *Lælia purpurata Venus* and *Odontoglossum crispum Crawshayanum*. T. Statter, Esq., Stand Hall, Manchester, staged a few Orchids, including *Cattleya Warscewiczii*, which received an award of merit. J. Bradshaw, Esq., Southgate, showed *Lælia grandis tenebrosa*; while F. M. Burton, Esq., Gainsborough, sent *Cypripedium Burtoni*. A botanical certificate was accorded to Mr. H. J. Chapman, gardener to R. I. Measures, Esq., for *Pleurothallis immersa*.

Messrs. F. Sander & Co., St. Albans, did not make such an imposing display as is usually the case; but each exhibit was of good quality and of much interest. Amongst the most noticeable were *Cypripediums*, *Cattleyas*, *Odontoglossums*, *Thunias*, and *Lælio-Cattleya C. G. Roebling*, for a description of which see below.

COMPETITIVE CLASSES.

In the class for a collection of Cactaceous plants there was apparently only one competitor, W. C. G. Ludford, Esq., Sutton Coldfield, Birmingham, who was accorded the premier prize. *Mammillarias*, *Echinocactus*, *Opuntias*, and *Cereus* in variety mainly comprised this interesting exhibit.

For twelve bunches of herbaceous flowers there were two exhibitors, and Mr. G. H. Sage, The Gardens, Ham House, Richmond, was deservedly adjudged the first prize. Handsome examples of *Lilium croceum*, *Gladiolus The Bride*, *Chrysanthemum maximum*, *Oenothera Fraseri*, *Lathyrus latifolius*, *Erigeron speciosa*, *Delphiniums*, *Potentilla Wm. Rollison*, *Campanula persicifolia coronata*, *Papaver nudicaule*, *Centaurea macrocephala*, and *Pæonies* comprised the stand. Miss Debenham, St. Peter's, St. Albans, was a fair second.

Mr. Herrin, Dropmore Gardens, Maidenhead, secured the first position in the class for eight bunches of hardy herbaceous flowers with *Delphiniums*, *Verbascum Choixi*, *Campanula persicifolia*, *Clematis recta*, *Irises*, *Spiræa japonica*, *Pæonia Charles Binder*, and *Pinks* Mrs. Sinkins and *Dropmore Pink*. Mr. H. A. Hare, Much Hadham, Herts, was a rather poor second. Mr. A. Crossman, gardener to J. Bruton, Esq., Yeovil, staged handsome *Delphiniums*, and was accorded the first prize, as also was the same exhibitor for *Pæonies*, but these were almost all poor.

CERTIFICATES AND AWARDS OF MERIT.

Begonia J. T. Bennett-Poë (J. Laing & Sons).—A handsome double variety with bright scarlet flowers (award of merit).

Begonia Prince Adolphus of Teck (J. Laing & Sons).—A handsome double variety with shapely crimson scarlet flowers (award of merit).

Calochortus venustus pictus (R. Wallace & Co.).—This is exceedingly beautiful. The upper portion of the flower is pure white, the base being reddish brown and covered with hairs (award of merit).

Carnation Cowslip (C. Blick).—This is a very charming yellow ground with bright rose markings. The petals are strong and broad, but destitute of scent (award of merit).

Carnation George Cruikshanks (C. Blick).—This is a medium-sized variety with bright reddish buff coloured blooms (award of merit).

Carnation Joe (C. Blick).—This is very handsome with substantial flowers, which are unfortunately scentless. The colour is pink with a faint bluish shading (award of merit).

Carnation Lady Ridley (C. Blick).—This fine double white variety has broad, stout petals of faint clove scent (award of merit).

Cattleya Warscewiczii (E. Hill).—The sepals and petals of this Orchid are intense purplish rose in colour, while the lip is rich velvety crimson purple (award of merit).

Dendrobium illustre (J. Veitch & Sons).—This handsome *Dendrobium* is a hybrid resulting from *D. Dalhousianum* and *D. chrysotoxum*, each of which is perceptible. The substance of the flower is very good, as also is the form. The sepals and petals are pale yellow, deepening towards the tips. The outer portion of the lip, which is broad, is bright yellow, the inner part being deep maroon. The woodcut (fig. 99, p. 561) sketched at the Drill Hall, admirably portrays this beautiful hybrid (first-class certificate).

Lælia grandis tenebrosa Charlesworthi (F. Hardy).—This is a fine variety with rich reddish brown coloured sepals and petals, and a bluish purple lip with a dark velvety throat (award of merit).

Lælia tenebrosa Pittiana (H. T. Pitt).—This is a very pale coloured form of the type (award of merit).

Lælio-Cattleya C. G. Roebling (F. Sander & Co.).—This is a bigeneric hybrid obtained by crossing *Lælia purpurata alba* and *Cattleya Gaskelliana*. The sepals and petals are a very delicate blush and of great substance. The lip is rich maroon, edged with white and having a canary yellow throat (first class certificate).

Lilium Dalhamsoni (T. S. Ware).—This is a dark reddish brown coloured *Lilium*, with occasional yellow markings (award of merit).

Melon Bishop's Favourite (A. Bishop).—This is a white-fleshed Melon of handsome appearance and medium size. The flavour is sweet and the flesh very juicy (award of merit).

Orchis latifolia Glasnevin var. (F. W. Moore).—This is a grand form of the type, with larger trusses and deeper hued flowers (award of merit).

Pæonia Madame de Galhan (Paul & Son).—The outer petals of this *Pæony* are bright rose, the centre of the flowers being very pale blush (award of merit).

Pea Daisy (G. Wythes).—This is a prolific Pea, growing about 1½ foot high. The pods are straight, and contain an average of nine peas. Those exhibited were from seeds sown on March 30th (award of merit).

Philadelphus Boule d'Argent (T. Cripps & Sons).—This is a double white flowered variety of the well-known type. The plant is of good habit, and extremely floriferous (first-class certificate).

Potentilla californica (M. Prichard).—This variety has large double yellow flowers that are freely produced (award of merit).

Sweet Pea Cupid (W. Atlee, Burpee & Co.).—This variety only grows about 9 inches high, and carries its pure white flowers with great freedom (award of merit).

Viola A. J. Rowberry (G. McLeod).—This is a superb new rayless variety with bright yellow flowers (award of merit).

HORTICULTURAL SHOWS.

YORK.—JUNE 19TH, 20TH AND 21ST.

YORK has long been famed for its floral fêtes, and thousands of persons look forward with pleasure to them year after year. They have won the proud position of being regarded as the greatest and most representative competitive display of garden produce in the kingdom during the month in which they are held. So great has been the success in past years that the managers are enabled to offer generous prizes in the various departments and command the best competition. This, with other adjuncts, which were declared good and desirable by the Dean of York, have attracted visitors from far and near. Not only do the shows afford pleasure for thousands who enjoy them but comforts for the afflicted, as they enable large sums of money to be granted to hospitals and charitable institutions. It is of course open to those persons who are disposed to take a particular view of the case to say the people do not care to see the flowers but the accessories. Still there is the fact of the crowded tents, and a dense mass of people from end to end, struggling to see all they can. As a fact the streams of visitors go direct to the marquees, and it is not until their contents have been examined and admired that they "take to the field." The bulk of them there listen to the best of music that can be provided, while there is plenty of variety for others of a more or less exhilarating yet perfectly harmless character. It is evident enough, however, that the horticultural display is the first and greatest centre of attraction.

It can be said without any reservation that every section of the show was worthy of the patronage bestowed. The entrance tent was a splendid approach—a promenade of beauty—provided by eleven picturesque groups of plants leading to what looked like a mountain of specimens. Then came the tent of Pelargoniums—a veritable mass, such as can only be seen at York. Beyond it the Roses—such a display as has never before been seen so early in the season anywhere; then there was the first really great fruit show of the year, and a splendid beginning in that line, while of hardy border flowers there was a grand display, to say nothing of other exhibits representative of most kinds of products in season, making a total of great magnitude and diversity. The different sections can only be briefly referred to, anything in the form of a detailed report and complete list of prizetakers being out of the question.

As above indicated there was keen competition in class 1, which was for groups of plants occupying a space of 300 feet square. Mr. Geo. Wilson, gardener to Sir Jas. Reckett, Bart., being first; this was a very artistic group, a number of tall Crotons being used, which gave it a very light appearance, but the margin was somewhat weak. The second, which was very close, contained more greenery, and was arranged by Mr. J. Edmonds, gardener to His Grace the Duke of St. Albans. Third (bold and rich), Mr. J. McIntyre, gardener to Mrs. G. Pease, Darlington. Fourth, Mr. W. Townsend, gardener to E. B. Faber, Esq., Harrogate. Fifth, Mr. Almondbury. It was thought the Council would make grants to some other of the eleven exhibitors in recognition of the splendid competition. A feature in the first group was that practically every plant in it could be seen, while some of the others, rich as they were, had mounds so large as to hide several plants behind them.

In the class for ten stove or greenhouse plants in bloom Mr. James Cypher, Cheltenham, was first with good specimens, Mr. F. Nicholas, gardener to the Marquis of Zetland, being second. Mr. Cypher was also first for six stove and greenhouse plants. For six ornamental foliage plants, first, Mr. J. McIntyre; second, Mr. J. P. Leadbetter, gardener to A. Wilson, Esq., Hull. Ferns were well represented. For six exotic Mr. J. McIntyre was first, his collection contained a grand specimen of *Davallia Mooreana*.

Three prizes were offered for a group of Carnations in pots, of not less than fifty. Messrs. Laing & Mather, Kelso, were an easy first; Mr. G. Mount second. These exhibits were not so good as last year. For twelve Gloxinias J. F. Wood, Esq., first; and for six, W. B. Richardson, Esq. For the collection of Roses in pots, grouped for effect, Mr. G. Mount, Canterbury, well deserved first place; his collection was tastefully arranged, and contained several plants of Turner's Crimson Rambler; Messrs. H. Jackson & Sons were second. For eight varieties in pots, Messrs. H. Jackson & Sons were first. There was not such a fine show of Orchids as is sometimes seen, Mr. J. Cypher being first for ten plants in bloom; and Mr. Roht. Johnson, gardener to Thomas Statter, Esq., Manchester, second. Mr. Cypher was also first for six plants; Mr. Tyson, gardener to J. R. Jessop, Esq., Leeds, second.

Pelargoniums are always a strong feature at this show, but were not quite so numerous as usual. In the class for twelve show Pelargoniums J. F. Hingston was first; Mr. J. Eastwood, gardener to Mrs. Tetley, Leeds, second. These two exhibitors were in the same order for six Pelargoniums. In the Zonal, Nosegay or Hybrid Nosegay sections, Mrs.

Tetley secured first prize for twelve, six, and three; and also firsts for eight double-flowered Pelargoniums, and three double-flowered Ivy-leaved.

There was a grand display of cut Roses, the finest ever seen so early in the season. The competition was keen throughout, and it must have been no easy work for the judges in awarding the prizes. In the class for seventy-two single blooms, not less than thirty-six varieties, there were eleven competitors. Messrs. Harkness & Sons, Bedale, were first with a magnificent stand; Messrs. Prior & Sons, Colchester, were second, and Mr. B. R. Cant, Colchester, a close third. For forty-eight varieties Mr. H. Merryweather, Southwell, Notts, was first among seven competitors; second, Mr. B. R. Cant; third, Harkness & Sons. For thirty-six blooms (twelve competitors) Messrs. G. & W. Birch, Peterborough, were first, D. Prior & Sons second, Harkness & Sons third. For twenty-four varieties, twelve stands, Mr. G. Mount was first, Mr. E. B. Lindsell second, Mr. B. R. Cant third. Ten stands of eighteen blooms were staged, the prizes going to Messrs. Townshend & Son, Worcester, Messrs. G. & W. Burch, and Mr. E. B. Lindsell. In the class for twelve white and yellow Roses Messrs. D. Prior, W. Mount, and G. Prince were the prizewinners respectively. Eight stands of twelve Hybrid Perpetuals, one variety, were staged, Messrs. Townshend being first with superb examples of Mrs. J. Laing, Mr. Merryweather second with the same variety, and Mr. Mount third. In the corresponding class for Teas the prizes fell to Messrs. Townshend, who won the chief position with Marie Van Houtte; Messrs. Burch second with Innocente Pirola; Mr. F. Cant third. The above were open classes. In the amateurs' section, in which there was good competition, Messrs. Moules, Hitchin; H. V. Machin, Gateford; Whitton, Bedale; Mallender, Hodsock; and Adamson, Bedale, were successful competitors. Altogether there were seventy-five competitors, and in such great and close competition several extra prizes were recommended, but the cards were not placed when the above record was taken. Messrs. Harkness's seventy-two stand blooms were splendid in size and colour; but in many stands there was a lack of brightness, as if the sun had affected the colour of the blooms, and although several were small, yet taking the collection in the aggregate it was a splendid opening of the Rose season.

For twelve bunches of stove and greenhouse cut flowers Mr. J. McIntyre was first. In a collection of twelve varieties, Orchids excluded, Mr. F. Nicholas was first, Mr. G. Wilson second. There was an extensive and excellent collection of herbaceous flowers. For twelve distinct bunches or spikes Messrs. Harkness & Sons were first with bunches more than a foot in diameter, and all distinct kinds; Mrs. Mellish second with excellent flowers, not distinct kinds, but within the terms of the schedule. The class for a collection of hardy cut flowers, space not to exceed 20 feet by 3 feet 6 inches, arranged for effect, brought several competitors. Mr. J. Allsop, gardener to Lord Hotham, was deservedly placed first with a very tastefully arranged collection on a groundwork of moss. Second, Messrs. Harkness & Sons, with splendid flowers. Third, Messrs. J. Cocker & Sons, Aberdeen, with a bold collection, but no attempt had been made to give a finish to the arrangement, not even by covering the boards with either baize or greenery, but as a mass of flowers alone the exhibit was very striking.

Messrs. Perkins & Sons, Coventry, carried off all the first prizes in the classes for hand baskets and bouquets. The prizes for Pansies as usual went to the north. For forty-eight Fancy Pansies first Mr. J. Smellie, Glasgow; second, Mr. J. Sutherland, Lenzie, N.B. For twenty-four varieties Mr. Smellie was again first; Mr. M. Campbell, High Blantyre, second. For twenty-four Show Pansies first Mr. Campbell. For twenty-four sprays of Violas, of six blooms each, Mr. J. Smellie first, Mr. J. D. Hutchinson second. The prize offered for the best exhibition of Pansies and Violas was secured by Mr. S. Pye, Lancashire, with capital collection.

The show of fruit was quite first-class, and far in advance of last year. The Grapes were remarkably well finished, and the Peaches and Nectarines beautifully coloured. In the class for ten varieties Mr. G. McIndoe, gardener to Sir J. W. Pease, Bart., M.P., was an easy first with Foster's Seedling and Black Hamburg Grapes, grand bunches, Bellegarde and Early Alfred Peach, British Queen Strawberry, well coloured, Brown Turkey Fig, Best of All Melon. A dish of unripe Oranges was a weak point in this otherwise splendid collection. The second prize went to Mr. G. Edmonds, gardener to the Duke of St. Albans. This collection contained some well coloured Nectarines. Third, Mrs. Ingram, Temple Newsham. For six varieties of fruits Mr. McIndoe was again first, Mrs. Ingram second. For one Pine Apple, Mr. G. Tullett, gardener to Lord Barnard, was first. In the class for three bunches of Black Hamburg Grapes, first Mr. G. Hickson; second, Mr. J. Johnson; third, Mr. W. Wallis, gardener to Sir H. Meysey, Bart. Three bunches of white Grapes Mr. J. Allsop was first with splendidly coloured bunches, Mr. W. Petre, gardener to C. H. Wilson, Esq., M.P., second. Mr. Large, gardener to W. Sheepshanks, Esq., was first for Peaches, Mr. McPherson, gardener to the Earl of Londesborough, for Nectarines. Melons and Figs were well shown. The first prized dish of Strawberries contained fine fruit of Royal Sovereign, and was awarded to Mr. J. A. Keywood, gardener to W. H. B. Wrightson, Esq. For Tomatoes, first Mr. G. Picker, gardener to F. R. Pease, Esq., Hull; second, Mr. J. Allsop. Prizes were offered by Messrs. Webb and Sons, and Messrs. Sutton & Sons for the best collection of vegetables, six varieties, grown from their seeds. The first prize in both collections was won by Mr. J. Crawford, gardener to Colonel Thorpe.

Several collections of plants and cut flowers were staged not for competition. Messrs. W. Clibran & Sons had a capital show of herbaceous flowers; Messrs. Dicksons, Chester, a splendid exhibit of Pæonies and other hardy flowers; Messrs. W. Cutbush & Sons, Herts

a fine group of Carnations in pots, as well as a stand of cut flowers. From W. & J. Birkenhead came a large collection of small Ferns in great variety. Messrs. Edwards & Sons, Nottingham, also had a stand of small Ferns in fancy pots and baskets; and Messrs. Sutton & Sons, Reading, a stand of Gloxinias, Begonias, Achimenes, and other plants in pots, also Peas in bearing; and Mr. Tidy, Havant, exhibited various useful appliances, his stand being brightened with a choice assortment of cut Pelargoniums.

Gold medals were awarded to Messrs. F. Sander & Co. for miscellaneous plants, Messrs. Charlesworth & Co. for Orchids, Messrs. Sutton and Sons for stove and greenhouse plants, and Messrs. Cutbush & Sons for Carnations and cut flowers. First-class certificates were granted to Messrs. Laxton Bros. for Royal Sovereign and Monarch Strawberries.

RICHMOND.—JUNE 26TH.

IN glorious weather the Richmond Horticultural Society held its twenty-first annual exhibition of plants, flowers, fruit, and vegetables on Wednesday last. Several large marquees were provided, and well filled with excellent exhibits. Roses were well shown in good quantities, and a large amount of space was taken up by the miscellaneous exhibits of nurserymen, by whom large and varied groups of flowers and plants were staged.

The premier prize for a group of plants was awarded to Mr. H. E. Fordham, Twickenham, for a tastefully arranged exhibit, consisting chiefly of Gloxinias, Orchids, Lilliums, and Carnations, with Palms, Crotons, and Maidenhair Ferns. Mr. J. F. McLeod, Roehampton, was second with a good group, but inferior to the former in elegance; and Andrew Pears, Esq., Isleworth, third. Mr. A. Offer, gardener to J. Warren, Esq., Handcross Park, Crawley, was awarded first for six stove and greenhouse plants in flower, his exhibit consisting of well-flowered examples of *Erica magnifica*, *Ixora Fraseri*, *Bougainvillea glabra*, and others.

For six fine-foliaged plants, distinct, Mr. A. Offer was again first with magnificent examples of *Cycas revoluta*, *Croton Williamsi*, *Kentia Belmoreana*, and *Anthurium magnificum*, the second prize falling to Andrew Pears, Esq. For six exotic Ferns Mr. C. Want, gardener to Sir F. Wigan, East Sheen, was first with well grown plants. Mr. J. Simmonds, gardener to W. Cunard, Esq., Twickenham, was a good first for six Caladiums. The premier award for six Fuchsias was awarded to G. Cotterell, gardener to the late W. Davies, Esq., Isleworth. Mr. J. Smith, Isleworth, was first for six Coleus, and Mr. A. Russell, gardener to J. Green, Esq., Isleworth, second.

In the class for forty-eight Roses, distinct (two trusses of each), the first prize fell to Messrs. D. Prior & Son, Colchester, for a fine exhibit of magnificent blooms, consisting of all the popular varieties. Mr. Frank Cant, Colchester, was a good second; and Mr. B. R. Cant, Colchester, third. For twenty-four Roses, distinct, Messrs. G. & W. H. Burch, Peterboro', were first; Messrs. D. Prior & Son second; and Mr. Frank Cant third. For twelve Tea Roses of one variety, J. Garney Fowler, Esq., South Woodford, was first; Mr. B. R. Cant second; and Mr. G. Mount, Canterbury, third. Other classes for Roses were well filled and the competition keen, the Judges having much difficulty in awarding the prizes.

Floral decorations were shown in quantity, and for dinner table decorations of natural flowers and foliage Mr. F. W. Seale, Sevenoaks, was first; Miss C. B. Cole, Feltham, second; and Miss Lilian Hudson, Gunnersbury House, Acton, third. The first prize for six exotic Orchids was awarded to Mr. A. Howard, Orchid grower to H. Little, Esq., Twickenham; Mr. W. H. Young, Orchid grower to Sir F. Wigan, East Sheen, being second.

Gloxinias were well shown, the best collection being that of Mr. H. G. Fordham, Twickenham. Mr. Watts, gardener to H. Little, Esq., gained first prize for Ivy-leaved Pelargoniums; and for Begonias, the first prize fell to Mr. Jas. Portbury, gardener to W. N. Froy, Esq., Putney Heath. Mr. Chas. Turner, Slough, was first for a collection of Fancy Pelargoniums. For a collection of Begonias, the first prize fell to Mr. Jas. Portbury, gardener to W. N. Froy, Esq., Putney Heath; Mr. R. Johnson, gardener to Alderman Roberts, Richmond, coming second. For six Palms, Mr. J. Simmonds, gardener to W. Cunard, Esq., Twickenham, was first; and Mr. T. P. McGregor, Putney Hill, second.

Fruit of fair quality was staged, Mr. W. Ford, gardener to W. H. Ellis, Esq., being first for collection of six dishes, which consisted of Foster's Seedling and Black Hamburgh Grapes, Hale's Early Peaches, Brown Turkey Figs, Melons, and Strawberries. Mr. G. H. Sage, gardener to the Earl of Dysart, Petersham, was second; and Mr. Thos. Osman, Ottershaw, Chertsey, third. For black Grapes, Mr. W. Ford, gardener to H. Ellis, Esq., was first; Mr. T. Osman, second; and Mr. H. W. Blake, gardener to Mrs. Blaine, Clandon Park, Guildford, third. For white Grapes, Mr. W. Tidy, gardener to W. K. D'Arcy, Esq., Stanmore Hall, Middlesex, was first; Mr. T. Osman, second; and Mr. W. Ford, third. Strawberries were fairly well shown, Mr. G. H. Sage gaining first prize with an excellent dish.

Excellent vegetables were shown in the classes set apart for them, the collection of Mr. Thomas Wilkins, Henstridge, near Blandford, which gained first honours for the prizes given by Messrs. Jas. Carter and Co., being exceptionally fine. Another good collection was that of Mr. C. T. Waite, Glenhurst, Esher, which was awarded first for the prize offered by Messrs. Sutton & Sons, Reading. A bright feature in the show was the miscellaneous exhibits, which were numerous and extremely diversified.



FRUIT FORCING.

Peaches and Nectarines.—*Early Forced Trees.*—Continuous forcing to have the fruit ripe in May and early in June taxes the energies of the trees, as they have to make the growths during the early months of the year and mature them in early summer. After the fruit is all gathered ventilate to the fullest extent, if possible removing the roof lights by the middle of July, or sooner in the case of the very early forced houses, if the weather be hot and the growths sufficiently matured. If the roof lights are not moveable, in addition to ventilating to the fullest extent, the borders should be duly damped and properly watered, so as to keep the foliage fresh, and no check given likely to induce the premature ripening of the young wood and leaves. Keep the latter free from red spider by syringing occasionally, applying an insecticide if necessary, sparing no pains to keep the foliage clean and healthy, thus enabling it to mature naturally. Stop laterals likely to interfere with the principal growths, but moderate lateral extension will promote root action and appropriate any excess of nutriment, which forced into the buds may result in an undue development. All shoots that have supported fruit, and are no longer required, should be removed to let air and light freely to the growths, and if there is too much crowding of the shoots for next year's bearing, thin them well to admit sun for solidifying those left.

Houses with Fruit Ripening.—A temperature of 60° to 65° at night and 70° to 75° by day, with 10° to 15° more from sun heat, is essential to the swelling and securing quality in the fruit. Except on cold nights and in dull weather little fire heat will be required, as the weather is bright; but changes come suddenly, and attention must be given to circumstances, so as to maintain steady progress, and admit of a little air constantly for securing flavour and good finish. Afford moderate air moisture, but withhold water from the fruit after it commences to soften, damping the floors and borders whenever they become dry, supplying water as required, and a mulching of spent, rather lumpy material will keep the surface in a condition favourable to the activity of the roots, and that without overdue atmospheric moisture. If the weather continue bright some netting spread over the roof lights will be an advantage in preserving the delicate skinned varieties, such as Noblesse, from unduly heating by the sun's rays, causing the fruit to ripen at the apex greatly in advance of those on the lower parts, and the fruit not infrequently decays there through over-ripeness, whilst the lower part is quite hard. These, indeed all fruits, are better ripened gradually than by being much heated, as is sometimes done under the large and clear panes of glass rightly employed in modern glass structures for growing fruit. A double thickness of herring nets or a single thickness of pilchard net drawn over the roof lights will sufficiently break the most powerful sunlight, insuring the fruit ripening evenly. This shading may remain on after the fruit is gathered, as it greatly conduces to the preservation of the foliage, insures the perfecting of the buds, preventing malformation or premature maturity, and this signifies less danger of the buds falling.

Young Trees.—Inattention to disbudding these, or leaving more growths than absolutely necessary for bearing and furnishing the trellis is a great mistake. The principal branches, or shoots to form them, should be 12 to 15 inches apart, and the shoots for next year's bearing, originated from the preceding year's shoots, disposed about 15 inches asunder along them, stopping if necessary at that extent of growth, and the laterals to one shoot as produced. The extension, or main shoots, should be trained in their full length, provided they are evenly balanced. If the shoots on one side are stronger than the other, depress the strong and elevate the weak, so as to induce an equal distribution of vigour throughout the tree. Any gross shoots may be stopped, but it is better to cut out excessively strong wood, as it is difficult to restrain, and often succumbs to gumming, therefore encourage sturdy, short-jointed growths. Ventilate early in the day, increase with the advancing temperature, avoiding a vitiated atmosphere by leaving on a little air constantly. Essential growths must be trained so that sun and air have access to them freely, keeping them thin and the foliage clean.

Figs.—*Second Crops.*—The fruits on early forced trees have now swelled to a good size, and being judiciously thinned, there will be a crop of good Figs towards the latter part of the summer. To insure this the foliage must be kept free from insects and the feeding liberal. When the crop is heavy, and the former thinning not having been sufficient, a second thinning should take place at once, leaving the most forward at the base of the shoots, which will ripen earlier than the others, and so afford more time for the ripening of the shoots at their points, these being kept well up to the light. Early forced, planted out trees, should have the young wood ripened and be resting by the middle of October.

Watering and Feeding.—If the borders have become dry whilst the first crop of fruit was ripening they must be watered repeatedly until the soil is properly moistened through to the drainage. Liquid manure will be required by trees having their roots in borders of limited extent,

and more frequently than by trees with a larger extent of rooting area; about once a week in the first case, and every fortnight in the other, giving thorough supplies, and always in a tepid state. Top-dressings of the advertised fertilisers may be given at intervals of three weeks or a month, always after watering, and then washing-in moderately. A light mulching is beneficial in supplying nutriment, keeping the soil moist, and encouraging surface roots; but it should be kept moist by sprinkling when it becomes dry.

Syringing and Insects.—Syringe the trees twice a day, except in dull, wet weather, when morning or early afternoon syringing will be sufficient, and always early enough to allow of the foliage getting dry before night. Judicious and forcible syringings are usually sufficient to keep down red spider, but if it and scale gains a hold they must be dislodged by the use of an insecticide, for which purpose the carbolic and petroleum soaps are effective. Old scale must be dislodged by using a brush. Painting the hot-water pipes with a cream formed of flowers of sulphur and skim milk, after heating them to 160° to 200°, keeping the house closed for an hour or two, with the sulphur on the pipes, is an effectual remedy for red spider and a good preventive of spotting in the fruit from attacks of fungi. The foliage should be dry, and the following morning the trees should be well syringed. Repeat the heating of the pipes, and brushing them with sulphur in about ten days.

Temperature and Ventilation.—Unless the weather be unusually cold and wet artificial heat will not be necessary, but fire heat must be afforded to maintain a temperature of 60° to 65° at night, and 70° to 75° by day. Ventilate early on fine mornings. Keep the house through the day at 80° to 85° with sun heat, and close early so as to run up to 85° or 90°, or even 95° to 100°, providing abundance of atmospheric moisture.

Succession Houses.—Fruit Ripening.—When the Figs change colour afford more air, insuring a circulation constantly, and a free movement of the atmosphere by top and bottom ventilation whenever external conditions are favourable. Reduce the moisture gradually, keeping water from the fruit, which expose as much as possible to light and air. Lessened supplies of water at the roots tell in favour of quality, yet the trees must not be allowed to suffer; therefore keep the soil moist, damping the surface occasionally to keep the roots there in a healthy condition.

Trees Swelling their Crops.—Afford a light mulching of short manure, and through this supply tepid water, or in the case of trees carrying heavy crops and not over-luxuriant, liquid manure, with alternate dressings of chemical manures. It is scarcely possible to overfeed Fig trees in well-drained, properly constructed, narrow borders, but deep borders and wide favour growth at the expense of fruitfulness. The trees grow splendidly and produce little beyond leaves. In fine weather syringe twice a day, always in good time, and close so as to run up to 90°, 95°, or 100°. As the fruit approaches ripening provide a little ventilation before nightfall, and let it remain, increasing it early so as to dissipate moisture deposited on the foliage during the night before the sun acts powerfully on the house.

Late Houses.—Grand Figs are grown in cool houses, one crop ripening in August and September. Calcareous soil, well-drained narrow borders, light well-ventilated structures afford best results. The chief points are to grow thin, feed highly, ventilate early, close soon enough to keep a good heat until the evening, affording abundance of atmospheric moisture. Avoid overcrowding the growths, stop wide shoots at the fifth leaf, and water liberally. Let the shoots grow with their points to the light, just keeping them clear of the glass, and they will fruit abundantly.

Melons.—Where fruit is required late a last sowing may be made for growing in frames or pits heated by fermenting material. Make the bed at once, sowing the seeds in 4-inch pots, one or two seeds in each, the pots being half filled with soil, and a supply of soil being given as the plant advances, but not higher than half an inch from the seed leaves; they can be turned out when the bed is ready, giving a good watering at planting, and shading from bright sun until established. One plant in the centre of each light is sufficient, its point being taken out at the second rough leaf; this will result in the production of side shoots, which reduce to four, taking two to the front and two to the back, rubbing off the laterals to within 6 inches of the stem, and stopping the primary shoots a foot from the sides of the frame or pit. The plants will show fruit on the laterals, which being fertilised will set early in August, and ripen towards the close of September.

Setting Melons in Frames.—Plants that were raised some time ago, and have been put out, will grow rampantly, and are sometimes difficult to set fruit, especially during moist weather. It arises from the moist atmosphere, crowding, and closeness; therefore thin the growths if too crowded, then fruit will show on the laterals, or if not stop these to two joints, and fruit will appear on the sub-laterals. Water sparingly, pouring what is necessary to keep the plants from flagging between the shoots so as to wet the surface as little as possible. Place hot manure against the sides of the frame, or grass mowings will do, with a little litter over the grass. This will raise a gentle heat, admitting of a little ventilation constantly day and night. Fertilise the flowers when fully expanded, stopping the shoots at the same time one joint beyond the fruit. Admit air freely if the weather permits, increasing the ventilation at 70°, allowing it to rise to 80° or 85° or 90°, at which keep through the day, closing at 80°, except the small portion before alluded to. When the fruit is set reduce to two to four on a plant, according to the vigour, and encourage growth by watering as required, and sprinkling the foliage at closing time. Commence ventilating from 75°, allow the heat

to rise to 85° or 90°, close by or before the temperature recedes to 80°, or between 4 and 5 P.M.

Growers who have well heated light houses will have no difficulty in maintaining a supply of fruit through October or November from sowings made up to the third or fourth week in July.

THE KITCHEN GARDEN.

Cabbage.—Unless Cabbage is grown quickly it hearts indifferently, and the quality is bad. A free use of liquid manure is most desirable, and a light dressing of nitrate of soda would hasten growth materially. Later rows ought to have the soil drawn up the stems, and the water or liquid manure can then be readily applied along the furrows. When cutting hearts do not strip off all the lower leaves, fresh growths and young hearts forming more quickly when the stems are not so treated. A good supply of tender young Coleworts never fails of appreciation in the late autumn and early winter months, and in order to be certain of these seeds must be sown at once.

Carrots.—Quite young Carrots form a good dish at any time. Any variety of Carrot will be found good for drawing in a young state, but the finer stump-rooted or Horn Carrots are the best for present sowing. They form a good succession to early Potatoes. Make the ground quite fine, draw drills 8 inches, or rather more, apart, water, and then sow the seeds moderately thick. The roots of these and later sowings are apt to be disfigured by grubs, and a very light dusting of wood ashes along the drills may well be given by way of preventive. Keep the surface of the soil among the row of maincrop Carrots well loosened, or otherwise undue loss of moisture, cracking, and premature maturation of crop may be the consequence.

Late Peas.—A long spell of hot, dry weather has hastened maturation in the case of Peas. There is little likelihood of sowings of Ne Plus Ultra, British Queen, Latest of All, and such like, made at this late date attaining a productive state before frost intervenes—at any rate in the more northern localities—though they might be tried in more favoured districts. If seeds of William I., Day's Sunrise, Exonian, or other good early variety were sown directly it is ripe, there would be a far greater certainty of having a good late crop, as new seeds germinate more strongly. Dwarf varieties may be sown in rather deep drills, from 5 inches to 15 inches apart in succession to early Potatoes, or where they can be protected from frosts.

Shallots and Garlic.—These are ripening somewhat earlier than desirable, and in many cases will be smaller than usual accordingly. When they come away freely from the soil remove to where they can be spread out and well harvested prior to storage; underground Onions to be similarly treated. Top of Tree Onions may also be duly dried and stored. These, if planted early, will give young Onions for salad purposes very early next spring.

Winter Spinach.—Winter Spinach is of the greatest assistance in keeping up a constant supply of green vegetables, and pays well for any extra pains taken in producing it. Towards the end of July is a good time to make a first sowing. The ground ought to be neither poor nor lumpy, and any, therefore, that is of a somewhat tough, badly working nature, should now be freely manured and dug up roughly. Sunshine will most probably give it a thorough baking, and rain causes it to crumble freely. A well-drained position should be assigned this important crop, and plenty of space allowed.

Mushrooms.—Manure should now be got ready for open air beds, and also for forming beds in sheds and other unheated structures. For the ridge system the longest and least stained straw should be forked away from the manure. Flat, or nearly flat, beds ought to be composed principally of short manure or horse droppings. Ridge-shaped beds are particularly liable to become violently hot, and this must be prevented, or otherwise failure to crop will be the result. The manure ought in all cases to be well prepared. In very wet weather it is frequently necessary to ward off saturating rains, but more often than not the watering pot and rose has to be used in preparing the manure, and again when the bed is formed.

Where Mushrooms May be Grown.—The sides of the Melon and Cucumber beds may have lumps of spawn inserted 8 inches apart all over them, and be cased over with soil similarly to ridge-shaped beds. After it has become no longer necessary to water the Melon plants in the frame, the inside beds may be spawned, and Cucumber beds nearly exhausted may be served the same. Mulch with strawy litter after the haulm is dead or cleared off, and keep on the lights in either cold or wet weather. When large heaps of manure and other decaying materials are formed for Vegetable Marrows there is usually enough heat to cause Mushroom spawn to run freely. Now is a good time to insert lumps of spawn all over these. Unless a very wet summer is experienced, Mushrooms should be forthcoming in September.



APIARIAN NOTES.

THE recent rains have increased the pollen supply to bees, but we want more rain before warm weather sets in, which will bring on a seasonable honey flow where flowers are not spoiled by the drought. We have several reports from the moors to the effect

that the Thyme is in bloom, and that the Heather will be early. In my garden several sprigs of white Heather are in bloom. The earliness of flowers and the backward state of many hives is a condition of matters bee-keepers are not proud of.

CHLORIC DROPSICAL FEVER.

This is more general than I had been aware of, one bee-keeper a quarter of a mile from me having five colonies dead out of six. If bee-keepers would turn their attention to discovering the real nature and causes of disease they would be benefactors to their brethren of the craft. Unfortunately for me some of mine are affected, but happily it is not infectious, nor is the disease confined to one breed of bees. I have hitherto looked on it as hereditary, but perhaps pollen from certain sources may have something to do with it, and some queens may be more easily excited than others. In no case have any of my bees died since I was compelled to give up the keeping of Italians.

My latest experiment to effect a cure or stop the disease is so far promising. Out of four cases the disease has left three of them, and is much abated in the fourth, but I am not prepared to say positively that it is due to the medicated food, but shall certainly continue it until I am certain. I dissolve the sugar in sulphurated water. Although I have made no attempt to remove the stores of the hive, it would be advisable to do so.

FEEDING.

Feeding at this date (21st June) may appear strange to beginners, but it has heretofore been the rule and not the exception, and but for the previous damage to pastures by drought our hopes would be as high as ever they were. The weather is unsettled, with a drying wind; hives well stored in everything are apt to draw their brood, therefore while the weather remains so bees should not be trusted by appearances, but should be fed, even if super-loaded combs be removed. These are useful to give to swarms or to nuclei.

The beginner will observe that although light hives are not mentioned, both light and heavy ones require the same treatment. From 2 to 4 ozs. of sugar every night is sufficient, and fed by scoops from below is the safest, easiest, and quickest way.—A LANARKSHIRE BEE-KEEPER.

SEASONABLE NOTES.

If not already done all hives intended for honey production, where the chief harvest is obtained from field Beans, white Clover, and the Lime trees, should be at once supered. Any stocks that are not of the desired strength should be assisted with a frame or two of brood and bees, as one strong stock will store more honey than half a dozen weak ones. This should always be borne in mind when preparing for the honeyflow.

Those stocks from which bees and brood have been taken may be utilised in various ways. I usually introduce either queen cells or virgin queens raised in stocks that have been noted for producing good workers. These again are introduced to colonies whose queens may for various reasons, require replacing, or for an increase of stock. In this locality (Yorkshire) field Beans are in full bloom and will soon be past their best; white Clover, of which there is a good promise, is fast coming into bloom and will be at its best in a few days. The next three weeks will decide the question whether the present season is to be an improvement on the last few years from a bee-keeper's point of view.

Some swarms that came off from straw skeps a week ago, although placed in frame hives with fully drawn out combs, have had to be fed with thin syrup. Thus no time has been lost, as the queens commenced laying at once. These were from skeps that were experimented with during the late severe winter, one of which was a late cast and had not half filled the skep with comb, and was not fed last autumn. To judge from its appearance at that time it seemed almost an impossibility to preserve the bees alive through an ordinary winter. When the frost broke up in March they were alive but absolutely without stores. They have been fed with thin syrup from a bottle-feeder placed on the crown of hive, and from that time up to now form one of my strongest stocks, thus showing what a little close attention will do by supplying food at the right time.

A good swarm and cast will amply repay me for the trouble entailed. The swarms although late will doubtless store a surplus if favourable weather prevails, as without bright sunshine and a light temperature honey will not be produced. Stocks that were supered a fortnight ago also have without exception done well, having drawn out the combs freely. It is surprising what a large amount of honey a strong colony will store in a few hours of favourable weather during the honeyflow.—AN ENGLISH BEE-KEEPER.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Tomatoes and Bordeaux Mixture (*Festina Lentè*).—The mixture has been found useful, when applied in good time, as a preventive of disease caused by the *Phytophthora*, and used at half the usual strength applied to Potatoes it did not injure Tomatoes under glass. For further references read the long reply on page 555 last week.

Tree Ferns (*Colonel*).—The position you mention will be much too hot and dry in summer. Establish them in pots or tubs in a naturally moist and shaded position, syringing as often as is necessary for keeping the stems moist, and maintaining humid surroundings. They grow well in a mixture of loam and leaf mould. Wednesday morning's letters can only be answered briefly in the current issue.

Pineapple Nectarine Leaves Eaten (*J. H. B.*).—The leaves appear to have been eaten by the grooved or black Vine weevil (*Otiorhynchus sulcatus*), which does not seem recent. If you spread some white cloths or newspapers beneath the tree in the daytime and after dark at night enter the house carefully with a lantern, with the light concealed, and shake the tree or trellis sharply and then turn on the light, you may find the weevils on the cloths or newspapers, as they drop when alarmed, and can be captured and destroyed.

Caterpillar on Pea Leaves (*P. J. Palmer*).—The caterpillar on the Pear leaves is the larva, commonly called slugworm, of the Pear sawfly (*Selandria atra*, or *Tenthredo cerasi* of some authorities). The sawflies deposit their eggs on the leaves, always the upper surface, and hatch in a few days; the slugworms then commencing to feed on the soft substance of the leaf, and soon cause the discolouration of the affected foliage. The best remedy is to dust quicklime on the affected parts, repeating occasionally if necessary at intervals of a day or two.

Compost for Peaches and Roses (*J. C. B.*).—Good strong turfy loam, 2 or 3 inches thickness with the turf. It is better to have the soil rather strong than light, but not very stiff, and if intermixed with stones or small pebbles all the better, especially if of a calcareous gravelly nature. Of this five parts, horse droppings or thoroughly decayed manure one part, nuts charcoal half a part, and if deficient in calcareous matter and grit one part. To this you may add, when mixed, about a 9-inch potful of crushed bones to every barrowful of compost, thoroughly incorporating. This compost, with good drainage, well firming the materials, will grow Peaches and Roses well, using chemical manures or top-dressings.

Insect Eating Holes in Scolopendrium Fronds (*T. C. B.*).—The insect is the clay or copper-coloured weevil (*Otiorhynchus picipes*), a very handsome male specimen in full glow of colour, as this is or soon will be the pairing season. The female is much duller in colour, but the larger of the two. It is very injurious to vegetation, feeds at night on a great variety of plants and trees, which should be taken advantage of to capture the pests. Spread, therefore, a white cloth or newspaper on the stage or floor, stand the pot on it, and place some paper on the surface of the pot nearly, but not quite close, to the crown. This should be done in the afternoon, and after dark at night enter the house carefully with a lantern darkened (a bull's-eye one being best with the light turned off); then shake the plant sharply, brushing the fronds with the hand, after which immediately turn on the light and kill all the pests, which will have fallen on the cloth or paper, scrutinising the base of the plant closely where the soil has not been covered. This is the best remedy, repeating until the weevils are annihilated.

Tomatoes in Pots (*Reader*).—The plants are probably at a standstill for lack of nourishment, and they certainly are drawn, possibly from being at a considerable distance from the glass and receiving partial instead of unobstructed light, with too close and moist an atmosphere, this being perhaps the cause of the flowers not opening freely and the fruit setting indifferently. It is best to confine plants in pots to one stem, which in ample light and with free ventilation should give a truss of bloom, and ultimately fruit at every other joint, the laterals being rubbed off or removed whilst quite small, the plant being

secured to a stout stake, or, if commandable, trellis. When the plants have set several trusses of fruit they should be stopped and the laterals kept well in hand, so as to concentrate the vigour on the fruit. As you have stopped the plants select the best growth and remove the other, training as a single cordon, or if you want a bush stop at every truss or a joint beyond, staking each growth and keeping fairly thin so as to admit abundance of air and light to the trusses, and as the fruits do not set freely fertilise the flowers as the pollen becomes ripe, taking care to keep the foliage dry and freely ventilated. Supply nourishment in the shape of top-dressing of the advertised fertilisers and water in, or use liquid manure, but neither water nor liquid manure should be given until the soil becomes dry, yet before the plants flag afford a thorough supply, keeping under in preference to overwatering.

Leschenaultia biloba major (*Amateur*).—This is a New Holland plant that has been greatly neglected. *L. formosa* is distinguished by the brilliant scarlet hue of its flowers, but *L. biloba* and the variety *major* (fig. 101) have much larger flowers, and of an



FIG. 101.—LESCHENAULTIA BILOBA MAJOR.

exquisite blue tint that is always appreciated because so scarce. The plants succeed best in peat and sand with abundant drainage, and they require the temperature of a greenhouse. The greatest care is needed in supplying the plants with water, and they should have a position on a shelf close to the glass, free exposure to light being important.

Gooseberries Spotted Red (*J. H. B.*).—The Gooseberries are infested with the Gooseberry fungus (*Aecidium grossulariæ*), which produces golden, orange, or reddish spots, somewhat swollen, on the fruits and leaves, on which parts are numerous little pits or cups, filled with small spores. The fungus completely spoils the fruits, and does a good deal of harm to the tree by injuring the leaves. The infected leaves and berries should be collected and burned, the sooner the better, as the spores are not yet shed, and there are myriads in the specimen sent, so you may judge what the spores from a bush may do in the way of infection this year or another, as they are capable of remaining dormant a considerable time. The ground may be dug as deeply as can be done without injuring the roots in the early winter, after dusting the bushes whilst wet with dew or mist, but with a prospect of fine weather, with quicklime, making them quite white. This can be done after pruning the bushes, the lime being effective against lichen and moss; that falling on the ground will do good to the soil, while it will act well against the fungus, usually preventing its recurrence, provided the surface soil is carefully turned under.

Diluting Drainage from Mansion (*J. C. B.*).—It is extremely difficult to give explicit directions for diluting the sewage from a mansion. When the tank or cesspool receives the drainage from the whole household—kitchen, pantry, and housemaids' sinks, as well as bath-room waste, along with lavatories—it is generally sufficiently diluted, and may

be applied as taken clear from the cesspool. In this condition we have used it for fruit trees, Roses, and vegetable crops with great advantage, particularly in a drouthy season, care being taken to keep it from the foliage. After the clear liquid had been drawn off the thicker portion was diluted with five times its bulk of water. In the case of the cesspool receiving nothing but the drainage of water closets the liquid should be diluted with at least six times the quantity of water, it always being best to apply it too weak than too strong. You must also ascertain if bleaching powder is used in the laundry in case of a general tank for the household, and if so, or other obnoxious substances are poured into it, the contents are dangerous if not absolutely poisonous to vegetation, and must not be employed. Sewage is a valuable (when pure) aid to gardening, but it is necessary to exercise due caution. It is quite as good as drainage from stables and cowsheds, and may be used alternating with this in proper dilution, which in both cases is a matter for judgment, and then extremely valuable.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*W. H., Limavady*).—*Brodiaea coccinea*. (*C. S.*).—1, *Diplacus glutinosus*; 2, *Adiantum cuneatum grandiceps*; 3, *A. pedatum*; 4, *Asplenium longissimum*; 5, *Woodwardia radicans*; 6, *Asplenium dimorphum*. (*E. F. G.*).—1, *Odontoglossum cordatum*; 2, *Dendrobium fimbriatum oculatum*; 3, *Vanda teres*; 4, *Oncidium papilio majus*; 5, form of *Cattleya gigas*. (*T. P. P.*).—1, *Viburnum Lantana*; 2, *Pæonia officinalis*; 3, *Aquilegia chrysantha*; 4, *Achillea mongolica*; 5, *Papaver nudicaule*; 6, *Heuchera sanguinea*. (*A. W. J.*).—*Dendrobium fimbriatum oculatum*. (*Killarney Fern*).—Through sending in an envelope instead of a box the Ferns were quite dead when they reached these offices. (*F. A.*).—The Strawberries were well flavoured examples of Dr. Hogg.

COVENT GARDEN MARKET.—JUNE 26TH.

STRAWBERRIES still in heavy supply and Peaches more plentiful.

FRUIT.

	s. d.	s. d.		s. d.	s. d.	
Apples, Nova Scotia, per barrel . . .	10	0 to 21	0	Cobs, per 100 lbs. . .	0 0 to 0 0	
„ Tasmanian, per case . . .	5	0	11	0	Grapes, per lb. . .	0 6 2 0
Asparagus, English, per bundle . . .	1	0	3	0	Lemons, case . . .	10 0 15 0
					Peaches, per dozen . .	3 0 12 0
					St. Michael Pines, each .	2 0 6 0
					Strawberries, per lb. . .	0 2 0 6

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Beans, Kidney, per lb. ..	0	6 to 0	0	Mustard and Cress, punnet ..	0 2 to 0 0
Beet, Red, dozen ..	1	0	0	Onions, bushel ..	3 6 4 0
Carrots, bunch ..	0	3	0 4	Parsley, dozen bunches ..	2 0 3 0
Cauliflowers, dozen ..	3	0	6 0	Parsnips, dozen ..	1 0 0 6
Celery, bundle ..	1	0	1 3	Potatoes, per cwt. ..	2 0 4 0
Coleworts, dozen bunches ..	2	0	4 0	Salsafy, bundle ..	1 0 1 6
Cucumbers, dozen ..	1	6	3 6	Seakale, per basket ..	0 0 0 0
Endive, dozen ..	1	3	1 6	Scorzonera, bundle ..	1 6 0 0
Herbs, bunch ..	0	3	0 0	Shallots, per lb. ..	0 3 0 0
Leeks, bunch ..	0	2	0 0	Spinach, bushel ..	1 0 1 6
Lettuce, dozen ..	0	9	1 6	Tomatoes, per lb. ..	0 3 0 4
Mushrooms, punnet ..	0	9	1 0	Turnips, bunch ..	0 3 0 6

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s. d.	s. d.		s. d.	s. d.
Arum Lilies, 12 blooms ..	3	0 to 4	0	Pansies, various, dozen ..	1 0 to 2 0
Asparagus Fern, per bunch ..	2	0	4 0	bunches ..	1 0 to 2 0
Bouvardias, bunch ..	0	6	1 0	Primula (double), doz. spys. ..	0 6 1 0
Carnations, 12 blooms ..	2	0	6 0	Ranunculus, doz. bunches ..	1 6 2 0
Eucharis, dozen ..	4	0	6 0	Roses (indoor), dozen ..	1 0 2 0
Gardenias, dozen ..	3	0	4 0	„ Moss (French) per doz. ..	1 0 2 0
Geranium, scarlet, doz. bunches ..	6	0	8 0	„ Tea, white, dozen ..	1 6 2 6
Lilac (French) per bunch ..	4	0	4 6	„ Yellow, dozen (Niels) ..	3 0 6 0
Lilium candidum, 12 blooms ..	1	0	2 0	„ Safrano (English), dozen ..	1 0 2 0
„ lancifolium, 12 blooms ..	4	0	6 0	„ Yellow, dozen blooms ..	1 6 2 0
„ longiflorum, 12 blooms ..	3	0	4 0	„ Red, dozen blooms ..	1 0 2 0
Marguerites, 12 bunches ..	1	6	3 0	Smilax, per bunch ..	4 0 6 0
Maidenhair Fern, dozen bunches ..	4	0	6 0	Spiraea, dozen bunches ..	4 0 6 0
Orchids, dozen blooms ..	1	6	12 0	Stephanotis, dozen sprays ..	2 0 3 0
Pelargoniums, 12 bunches ..	6	0	9 0	Tuberose, 12 blooms ..	0 4 0 6

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to 12	0	Heliotrope, per dozen	..	6	0	to 8	0	
Aspidistra, dozen	..	18	0	36	0	Hydrangeas, per dozen	..	12	0	42	0
Aspidistra, specimen plant	5	0	10	6	Lobelia, per dozen	..	4	0	6	0	
Calceolaria, per doz.	..	6	0	9	0	Lycopodiums, dozen	..	3	0	4	0
Coleus, per doz.	..	4	0	6	0	Marguerite Daisy, dozen	..	8	0	10	0
Dracæna, various, dozen	..	12	0	30	0	Myrtles, dozen	..	6	0	9	0
Dracæna viridis, dozen	..	9	0	18	0	Palms, in var., each	..	1	0	15	0
Euonymus, var., dozen	..	6	0	18	0	„ (specimens)	..	21	0	43	0
Evergreens, in var., dozen	..	6	0	24	0	Pelargoniums, per dozen	..	10	0	15	0
Ferns, in variety, dozen	..	4	0	18	0	„ scarlets, per					
Ferns (small), per hundred	..	4	0	6	0	„ dozen	..	3	0	6	0
Ficus elastica, each	..	1	0	7	0	Rhodanthe, per dozen	..	4	0	6	0
Foliage plants, var. each	..	2	0	10	0	Roses, per dozen	..	8	0	24	0
Fuchsias, per dozen	..	6	0	10	0	Schizanthus, per dozen	..	6	0	9	0
Geraniums, Ivy, per dozen	..	7	0	10	0	Spiræa, per dozen	..	6	0	10	0



PROGRESSIVE AGRICULTURE.

AMIDST all the doubt and difficulty arising from an agricultural depression of an intensity and duration greater than has probably ever been known before, the steady progress of technical instruction under the fostering influence of County Councils is an encouraging sign, an indication of the recognition of a want, as well as of the possibility of doing better in the future than we have in the past, by the acquisition of that exact knowledge which a scientific training alone can give.

A short time ago we called attention to the opening of a new agricultural college at Wye for students from some southern counties. We have now a similar duty to perform in connection with the Midland Dairy Institute at Kingston Fields, in Nottinghamshire, which, as the prospectus sets forth, "Is in connection with the County Councils of Derbyshire, Leicestershire, Lindsey Division of Lincolnshire, Nottinghamshire, and with the Agricultural Department of the University College of Nottingham." Our readers have had some indication of the exceptional abilities of Mr. J. R. Dunstan, head of the Agricultural Department of the College, in our articles upon his pamphlet on Dairying in Denmark, and his connection with the Institute may be taken as a guarantee of good work and a thorough training of the students.

We have been over the farm, and consider it to be admirably adapted to the requirements of such an institution, in regard to which the prospectus shows that it is situated in the south-west corner of Nottinghamshire, within a few miles of the boundaries of that county and the adjacent counties of Derbyshire and Leicestershire. Its position for the Midlands is therefore central, and it is close to the finest dairy land of the kingdom, and to the home of Stilton cheese making. The farm of 160 acres consists of about 100 acres of pasture, the remainder being arable land varying from a light soil to heavy clay, thus affording students lessons in the cultivation of pasture, and in the management of both heavy and light land.

The main object of the Institute is to provide a thoroughly practical course of instruction in dairying, combined with such scientific instruction as is found necessary to explain the principles on which the practice depends. The production of milk, and the causes influencing such production, milking, treatment of milk for transit, methods of creaming, separating, butter-making, with the best methods of packing and marketing, will be taught, and students will be expected to spend the greater part of the day in the actual practical work; whilst in cheese-making practical and theoretical instruction will be given in the manufacture of soft cheese, and of the various kinds of English cheese—Cheddar, Stilton, Derby, Leicester, Trentside, and Cheshire; and of the foreign varieties Gorgonzola, Brie, Camembert, Gruyère, and Edam, accurate records of all work done being kept by the students. Thus the aim is not only to teach the students how to make the best kinds of English cheese in the best way, and so command a better market for home produce, but also to carry the war into the enemy's country by teaching them how to rival the foreign producer in making the most popular sorts of cheese now imported to his benefit, and our serious loss. Mr. John Benson, late manager of the British Dairy Institute at Aylesbury, will be the chief instructor in dairying.

The scope of the work is wide and comprehensive. Thus in Class A a six-weeks course is open to farmers, their wives, sons, daughters or dairymaids, and others requiring practical instruction in hard and soft cheese (not more than two kinds), and butter-making, in the general management of cows, and of a small dairy. Class B offers a three-months course for those requiring a commercial knowledge of dairying or factory management, such as dairymen in a large way of business, factory managers, and intending colonists.

There are four other classes, each having its special object the entire scheme being evidently an outcome of most careful deliberation; for it is one of the best combinations of science with practice that we have ever seen. We may add that the fees for instruction are low, and the premises comprise thoroughly equipped dairy buildings specially designed for the work. Farmers and dairymen in the district are offered advice free of charge at the Institute, which bids fair to prove a great boon, a real help in time of need to Midland dairy farmers.

WORK ON THE HOME FARM.

Haymaking is being pushed on while the weather continues fine and fairly settled. Some of the hay crop on land which came in hand at Lady Day is backward, but we have decided to mow all that is a fair crop, while the herbage is at its best and the hay can be made quickly, rather than wait for more growth. What hay is made will be of the best, and the aftermath will be available for grazing. To wait for a full crop involves a serious loss of quality in the first growth, a risk of broken weather and inferior hay costing much more to save than the best early hay.

Clover hay has also been got into rick in capital condition, some of it being a rather light crop; but the mixed seeds and Rye Grass are a heavy crop, requiring much caution in stacking. We like substantial stacks of good width, and guard against overheating by having one or two air shafts from bottom to top of each stack by drawing up with the building a sack stuffed with straw. The sack is taken out of the shaft at night to give vent to any vapour generated by rapid heating. Such shafts are really simple and efficient safety valves, preventing both discolouration and spontaneous combustion. By all means use rick cloths, but in fine weather have them off the rick early in the morning, in order to have the top dry before carting begins again.

The steam cultivator has been kept going to such good purpose that all our foul land has been gone over twice, Charlock destroyed, and much of the Couch Grass got out and burnt. With a set of steam tackle available now and during harvest foul land and stubble cleaning can be got on with while the horses are all required for carting and mowing. On the score both of economy and efficiency it answers to hire the tackle. We get our arable land done twice over at a cost of 10s. an acre, we finding coal and carting water. This insures clean land, a deep tilth, and by keeping the work well in hand thorough autumn tillage, and though last certainly not the least, economy in horses, only enough being required for carting and implements.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
1895. June.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.	
Sunday .. 16	30.106	60.7	50.2	N.	60.0	73.6	46.0	116.9	40.4	—
Monday .. 17	29.941	59.0	52.1	N.	60.9	68.6	46.1	116.4	37.1	—
Tuesday .. 18	29.763	61.2	53.7	N.W.	60.1	75.1	43.9	120.7	36.9	0.200
Wednesday 19	29.690	54.7	53.2	N.	61.1	68.8	51.2	104.9	48.6	—
Thursday .. 20	29.964	60.8	54.9	N.W.	60.0	74.1	47.7	122.2	42.6	—
Friday .. 21	30.289	65.0	52.4	N.W.	61.1	74.9	47.1	125.9	38.6	—
Saturday .. 22	30.364	61.8	59.3	N.W.	61.9	77.4	58.1	122.0	53.7	—
	30.017	60.5	53.7		60.7	73.2	48.6	118.4	42.6	0.200

REMARKS.

- 16th.—Bright sunshine and pleasant breeze.
 17th.—Bright sunshine in morning, generally cloudy in afternoon.
 18th.—Hazy and cloudy at times, but generally sunny.
 19th.—Rain from 2 A.M. to 9 A.M., overcast with frequent spots of rain till noon; occasional sunshine in afternoon.
 20th.—Bright sunshine almost throughout.
 21st.—Bright sunny morning, frequently cloudy in afternoon.
 22nd.—Overcast morning; sunny and rather oppressive in afternoon.
 A very fine week, with only one day's rain.—G. J. SYMONS.

